

UNITED STATES DEPARTMENT OF COMMERCE

**HIGHLY MIGRATORY SPECIES AND BILLFISH
ADVISORY PANELS: JOINT MEETING**

Thursday, March 17, 1998

9:30 a.m.

PARTICIPANTS:

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Ray Bogan
David Borden
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Craig Brown
George Burgess
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Jean Cramer
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Jack Dunnigan
Bob Eakes
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Roger Hillhouse
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Pete Jensen
Mike Justen
Joe Kimmel
Rob Kramer
Rebecca Lent
Pamela Mace
Mariam McCall
Mark Murray-Brown
Ellen Peel
Joe Powers
Vince Pyle

Paul Raymond
Rich Ruais
Carl Safina
Mark Sampson
Margo Schulze
Jerry Scott
Bob Spaeth
Jill Stevenson
Lori Svensson
Mike Travis
Steve Turner
Alan Weiss
Peter Weiss
David Wilmot
Bob Zales
Rachel Husted
Preston Pate
John Graves
Ron Held
Eric Prince
Russell Dunn
Buck Sutter
Pat Scida
Phil Goodyear
Don Green
Gail Johnson
Andrew Kemmerer
Sari Kiraly
Liz Lauck
Linda Lucas
Gary Matlock
Charlie Moore
Russell Nelson
Ellen Pikitch
Tom Putnam

1 PROCEEDINGS

2 MR. DUNNIGAN: Good morning. I hope everybody slept well. We have another full agenda for
3 today. The focus yesterday, as we said, was on questions of over-fishing. The focus for today is on
4 questions of rebuilding, how far and how fast, for both the migratory and for the billfish fishery
5 management plan as well.

6 We are going to start this morning with the presentation by Mariam McCall to set the framework.
7 A couple of times yesterday, the question was what is in the law. And Mariam is going a little bit about
8 the provisions of the Fisheries Act as to how they affect questions of rebuild-up. You are up.

9 MS. MCCALL: What could be better than listen to me at 8:00 in the morning talk about legal
10 requirements, right. I guess the only thing is that it is fairly short on the agenda, although I have been told
11 that I can kind of talk longer than that, because our scientists are not scheduled to arrive until about 8:30.
12 So can have a real rousing discussion. (Inaudible).

13 I have been asked to refresh your memories a little bit just in general about provisions that we
14 have to follow when we do FMP under the Magnuson-Stevens Act. So I am just going to point them out,
15 so you can discuss them briefly. And I am going to discuss a little bit the requirements and refresh your
16 memories about NEPA, the National Environmental Policy Act, and the range of alternative that we need to
17 look at. Because that will be one of the things that we will be working on today.

18 Now you all have your red books, I hope. Oh, I see that some of you do not have them. You
19 have got to keep these books with you. I take it wherever I go, and now I know almost everything that is
20 in it.

21 Some of the important provisions are in several different places, not only in the statute itself, but
22 also I think in the issues and options paper. Not the most important, but kind of the relevant provisions
23 were included in the appendix, I think. So you have those.

24 I think that you may have received them also in a separate pull-out, in case you do not want to
25 carry your red book around and have it tabbed. So you can have Tab 301, 303, and 304. So you can turn
26 right through them.

27 So just to remind you. Every conservation and management measure that we take under the

1 Magnuson-Stevens Act has to be consistent with the national standards. There are ten national standards.
2 Those are in 301.

3 This is not too relevant -- well, it is a bit. Of course, we have National Standard 1 as part of the
4 whole rebuilding discussion. But as we discuss, as we are in the process of developing alternatives and
5 narrowing down the alternatives that we are going to analyze and consider, ultimately choosing our third
6 alternative, and then proposing it, we need to consider it in the context of the national standards.

7 So what is important from my perspective for you all to do is when we are thinking about those
8 and discussing those alternatives, think of them in the context of the 301 national standard, you know. We
9 are looking at this kind of closure, you know.

10 Is it based on the best scientific information available, National Standard 2. You know, what are
11 the safety issues.

12 If you look at the national standards, often they do not mandate an outcome, but they mandate a
13 discussion and consideration, something in the record. And one thing that the agency can get help from
14 you, from this panel, is to bring up issues, and to help us develop the issues for consideration and the
15 issues for discussion, and help us with the record.

16 So it is important for us and the agency, and one of my roles here, is to try to bring up issues, and
17 to try to get things on the record. You know, try to ask questions. But it would be helpful if you could
18 identify issues as we go along, and discuss them in the context of the national standards.

19 Of course, there are the existing national standard guidelines. So we have had a lot of discussion
20 about the fact that the guidelines are not out yet. Those are amendments to the existing guidelines. So we
21 have plenty of existing guidelines as to the application of the
22 pre-sustainable Fisheries Act. So those are our guidance as well.

23 And we are actually getting a little bit of case law as guidance on some of the national standards.
24 You probably are familiar with the summer flounder case out of the southern district or the eastern district
25 of Virginia, and also the recent shark decision out of Florida, where there was a bit of discussion of well,
26 the court did not exactly like the way that we complied with National Standard 8, 8 or 9. I am a little
27 confused about the last three.

1 But where we are supposed to consider the impacts on fishing communities. The court found our
2 records a little bit lacking in that discussion. So among other things, the court sent the analysis back to
3 the agencies for their further consideration of the analysis. So anyway, 301, the national standards, keep
4 those in mind.

5 No. 303(a) are the required provisions of a FMP. Again they do not mandate an outcome, but they
6 require a lot of discussion, and a lot of description, a lot of assessment and specification.

7 Liz went over the draft or the outline that we are considering for the FMP. A lot of those specific
8 issues were taken directly from the required provisions. So that is one thing that we are going to do is have
9 a check list at the end, and at points throughout this process check up. Look, we have covered this; look,
10 we have covered this. So any help from you, of course, would always be helpful as well.

11 And then we have the 304(g), which are the special provisions that relate to the Atlantic highly
12 migratory species. As I mentioned before, the highly migratory species standards are add-ons to the national
13 standards.

14 We also got some guidance from the court in the recent shark case on some 304(g) provisions.
15 The court agrees with the government that some of these provisions implicate functions that are vested in
16 the executive branch and not therefore reviewable by a court.

17 I believe that there were a few that he felt, especially the requirement of (inaudible) in
18 management, measures taken for consideration of traditional fishing patterns of fishing vessels, and
19 operating requirements of the fishery. He found that our records did not adequately take that notion into
20 consideration. That is another one of the things on remand that we have to do.

21 So we will be talking about those as well. And again, my role, one of my roles at these
22 meetings, will be to try to bring up these issues. If somebody says we cannot do X, Y, and Z because it
23 violates National Standard 4, you know, I hope that someone else will say why, or at least that I will say
24 why. So we can get a good record, and the agency can understand why you think it violates, that such and
25 such a measure violates National Standard 4. Because that helps us in the assessment of the situation.

26 Some of the FMPs that I reviewed have a specific section when they are considering an amendment
27 or a FMP that will have a section on national standards. And it will go through the preferred alternative

1 standard by standard, and a continuing discussion of that. I hope that we are going to be doing that. It
2 makes it a lot easier in the end to analyze it. I think that it puts in front a decision here too of the notion
3 of consistency with the national standards.

4 Because it is very important.

5 From my perspective and especially my recent perspective, although most of the litigation we are
6 doing right now is under the Tunas Act, but I am spending all my time these days doing litigation. So the
7 notion having something on the record, and having an adequate description and adequate discussion, is very
8 important to me. Because we have to argue in court that we have done an adequate job.

9 Under NEPA, if you recall, back-up step, you will recall that not only do we have to comply with
10 the
11 Magnuson-Stevens Act, if we do take major federal actions or do rule making, but we have all of these
12 other laws that we have to comply with.

13 Two of the laws that require analysis of impact is the Regulatory Flexibility Act requiring
14 economic impacts, the one that requires us to look at the economic impact on small entities. And the two
15 cases that I mentioned previously, the summer flounder case and the shark case, you might want to read the
16 court's dissatisfaction with the agency's compliance with this law, and the analytical requirements, in the
17 shark case and in the summer flounder case.

18 In the shark case, you did not know that the court has sent back to the agencies or remanded to the
19 agencies with an order to complete a rationale consideration of the economic impacts. And the analysis and
20 consideration must be completed and handed to the court by May 15th. So we are in the process of doing
21 that. And, of course, what we do in that forum will help us in the analysis, I am sure, for the rebuilding
22 provisions for sharks.

23 Under NEPA, every time that we take a federal action, we are supposed to look at the impacts on
24 the human environment. Specifically and kind of foremost, the biological impacts. But impacts under
25 NEPA include the range of impacts on the human environment, and that also includes the socioeconomic
26 impacts. Under NEPA, and this is important that a few people have asked me -- since the guidelines are not
27 out, since we do not know the specific requirements of a rebuilding program, that we do not know what the

1 agency's guidance is or thinking is on the rebuilding time frame, how can we do any of this, you know
2 aren't these meetings premature.

3 Well, I think that it makes it a little bit difficult, but certainly not impossible. And one of the
4 reasons is that under NEPA that we are supposed to look at the range of reasonable alternatives. And
5 NEPA is designed to have the agency consider alternatives before it makes up its mind. It is supposed to
6 aid in the decision making.

7 So under NEPA, the first thing you have to decide is what are the reasonable alternatives. We do
8 not have to want to analyze the impacts of 3000 alternatives. And often, it is hard even to whittle down
9 what are the reasonable alternatives, because a lot of people have different views. Some people think that
10 for a specific fishery that ITQs are completely reasonable. And you know, the other side of the table is like
11 no way in hell are they reasonable.

12 So often, you know, we have to use some judgment there. But certainly, when you are looking at
13 a resulting time frame, and you are looking at resulting scenarios, generally what the agency will do is take
14 the broad range. You take the extreme on one end and the extreme on the other end, and analyze those and
15 analyze certain points in between.

16 So without having any specific guidance as to what that point might be once the guidelines come
17 out, you certainly can be discussing what your range of alternatives are and what some of the alternatives in
18 the middle are within the range. So that is important. I think that is all.

19 MR. DUNNIGAN: We have a couple of minutes for questions. Bob Hayes.

20 MR. HAYES: We would not be analyzing alternatives that are precluded by statute though, would
21 be?

22 MS. MCCALL: Well, under NEPA, you can do that. Under NEPA, NEPA does not limit you to
23 analyzing only those things that you have statutory authority over or that are feasible or unforeseeable.
24 And sometimes there are advantages to analyzing something that you do not have statutory authority over.
25 Because if you think it is a really hot idea, and you analyze it, and you point out the benefits to it, heck,
26 the people who make the law might look at that.

27 I am not encouraging you to do that. But I am just stating that sometimes in a NEPA document

1 that you will see at least a discussion of things that are not authorized necessarily by statute or are
2 inconsistent by statute. I would not really advise my clients to go into a lengthy analysis of something
3 that violates the Constitution, because I would not see any merit in that.

4 Nor would I see a lot of merit in a lengthy analysis of something that is contrary to statutory
5 authority. But yes, we can do it. Or you can mention it.

6 With NEPA, the thing that is the most important to us that we learned from all of our litigation is
7 in NEPA it is better to say something than just be quiet on an issue. If it is something that was considered
8 and then rejected, it is good to put that in and discuss why it was rejected.

9 MR. DUNNIGAN: Dave Borden.

10 MR. BORDEN: What is your legal view of the provision under 304(g)(1)(c), which is the issue
11 of minimizing the disadvantage to U.S. fishermen?

12 I mean you can articulate the view that a strict reading of that, in order to accomplish that, is you
13 have to have identical regulation with the international community mandate. You can also take the
14 opposite view.

15 But what is your legal view of that?

16 MS. MCCALL: On 304(g)(1)(c)?

17 MR. BORDEN: Yes.

18 MS. MCCALL: It says, "The Secretary shall evaluate the likely effects if any of conservation and
19 management measures on participants in the affected fisheries, and minimize to the extent practicable any
20 disadvantage to the United States fishermen in relation to foreign competitors."

21 My view on that is minimize to the extent practicable is not an absolute. We do not have to
22 eliminate any disadvantage to the United States fishermen, but we certainly are supposed to evaluate the
23 likely effect and evaluate the likely disadvantage to U.S. fishermen, and minimize them to the extent
24 practicable.

25 And to the extent practicable, that language requires an analysis that is kind of a weighing and
26 balancing of the issues. If you have an overriding statutory requirement or an overriding agency policy that
27 is a heavy one vis-a-vis the competitive disadvantage, it is not an absolute requirement that we eliminate it.

1 Yesterday I heard some people discussing or some statements that indicated that people think that
2 it is an absolute eliminating type requirement, and it is not.

3 MR. DUNNIGAN: Marsha.

4 MS. HASS: I think that Mariam just addressed part of what I want to talk about. For the non-
5 lawyers here, I certainly do not want them to go away with the impression that just because a judge said
6 that the record was not as full as it should have been, that would somehow even in the slightest change the
7 actual result. Because you will weigh the alternatives, and one alternative may outweigh the other.

8 So the fact that the record is not as good as it should have been does not mean that issue would
9 decide the case.

10 MS. MCCALL: Exactly. To kind of complete the rest of the picture, I am glad that you brought
11 that up. You may not know this or you may have all read copies of the decision, but it was a split
12 decision. The quotas are still in place. The court upheld the government's decision under National Standard
13 1, an optimum yield issue. National Standard 2, the (inaudible) information available. And under some of
14 the other provisions of the statute.

15 So the quotas are in place. I did not want to leave the impression that (inaudible). As I said, that
16 was a split decision.

17 MR. DUNNIGAN: Another question or two is all we have time for.

18 MR. BEIDEMAN: Nelson Beideman, Blue Water Fishermen's Association.

19 Under National Standard 4, as we move into these primary closures, and thus far the only thing I
20 have heard is consideration of closing one gear type in these areas. And then allowing other gear types,
21 other user groups using the exact same hooks, into these areas to target HMS species that are in most cases
22 even in far worse shape and far worse condition. I do not see how that is a rational approach from the
23 National Marine Fisheries Service.

24 MS. MCCALL: What we will do once primary closures are discussed and considered, we will
25 have to discuss it looking at the impacts, and looking at the affected gear types, and looking at all of the
26 facts and data, and discussing it in that context. You know, I cannot answer it without having the facts in
27 front me as to consistency with National Standard 4. But certainly, it is something we have to consider.

1 MR. DUNNIGAN: Rich Ruais for a question.

2 MR. RUAIS: Last week, Mariam, in Charlotte, you gave a good perspective on what the agency
3 feels are the alternatives if we run into the situation where ICCAT does not necessarily agree with any of
4 the domestic rebuilding plans that we are offering up either in terms of the time frame or the quotas in the
5 short term or over the long term.

6 I think that we could all benefit here, if you gave that same view of the ranges of options that
7 people think are out there, and then in reality where the agency is now interpreting the law.

8 MS. MCCALL: I can do that in just a couple of minutes, I think. The Magnuson-Stevens Act,
9 you know we are all undergoing this process of developing the rebuilding programs. What does that mean
10 in the international context, as was discussed a bit yesterday.

11 I gave a bit of a presentation last week at the rebuilding workshop. Because there have been
12 different positions stated. Some people have said publicly or in writing to me that it means nothing.
13 Because the rebuilding provisions under 304(f) have a complete escape clause for international species. So
14 why should we even bother to do it domestically.

15 In other words, we can just go to ICCAT and ignore rebuilding completely. Because we have this
16 escape clause, and because we are bound more or less by the ICCAT quotas, or allocations, or fishing
17 mortality levels.

18 Other people have said no, no, no, it means everything. It means that you develop a rebuilding
19 program that is consistent with the Magnuson-Stevens Act, with the time frame of the Magnuson-Stevens
20 Act, and you must by law go to ICCAT and negotiate that. And if you are unsuccessful in your
21 negotiation, you must by law come back if the United States objects to that recommendation and then the
22 recommendation (inaudible).

23 The truth is, as the truth often is, somewhere in between there, at least the truth as I see it, the
24 truth as to general counsel.

25 By law, it is not -- well, let me see how to phrase it. It is not a question of law. It is not a
26 matter of law that the government must go to ICCAT and negotiate a rebuilding provision that is
27 consistent with the

1 Magnuson-Stevens Act.

2 We are comfortable in general counsel with stating that, and we would be comfortable in defending
3 a case, if someone tried to press a court to make us to do that. (Inaudible) functions are vested in the
4 executive branch, exclusively in the executive branch. And we believe that the Congress cannot, nor can a
5 court, nor would a court try to have us negotiate a particular situation or a particular strategy at ICCAT,
6 similarly with coming back from ICCAT and accepting or not a recommendation.

7 However, as a matter of policy, what the agency is going to have to do sooner than later for
8 bluefin tuna, and eventually for the other species, for bluefin, since this is a bluefin year at ICCAT, the
9 agency is going to have to look at the policy that is outlined in the Magnuson-Stevens Act. There are
10 statements in there as to the purpose and objectives of the statute.

11 And there is clear guidance in the rebuilding provisions that Congress -- Congress included HMS
12 in the rebuilding provisions. Of course, some people think that they did not, and that we cannot even do
13 that. We do not agree with that either.

14 We have identified these fisheries, and clearly think that this section applies to highly migratory
15 species. And Congress has made it clear that they want these rebuilt. That is a policy that is a policy
16 decision that the government is going to have to take into consideration in the fall when it is developing its
17 negotiating strategy at ICCAT. It is a matter of policy, not a matter of law in the international sense. That
18 is basically it.

19 MR. DUNNIGAN: We have time for one more question.

20 Mr. Claverie.

21 MR. CLAVERIE: Can you, please, explain what you just explained in Section 102, which twice
22 at least says "shall do"?

23 MS. MCCALL: Well, if you would read the signing statements. Whenever the president signs a
24 bill into law, you know, often there will be a statement that goes along with it. And every time the
25 president signs a statement that has a "shall" requirement in the international context, the president always
26 states that because the foreign affairs functions are vested in the executive branch, that he is taking that
27 "shall" language which sounds like a mandate as a recommendation, because of the Constitution. So that is

1 how we read that, the "shall".

2 Now as I said before, the weight that the government gives to that and the weight that executive
3 branch gives to that in the policy development for ICCAT is another consideration. I suppose that the
4 "shall" is stronger advice from Congress, but it is not a legal mandate to the executive branch.

5 MR. DUNNIGAN: We do need to move along, and we do not want to get into legal debates.

6 MS. MCCALL: There is another forum for that. I have got to wear a suit, if I do that.

7 MR. DUNNIGAN: Do you have a question, Carl?

8 MR. SAFINA: This is just quick and a little different. Most of the difficulty that we have in all
9 of this stuff has to do with the economic effects on various people.

10 Is the right place to raise the issue of economic relief or subsidies for displaced fishers, or other
11 kinds of creative ways to use money and financial incentives to reduce the difficulties that we face in
12 rebuilding these populations?

13 MS. MCCALL: Certainly, in the course of the development of the rebuilding plans, sure. And
14 the discussion of minimizing economic disadvantage. Under our
15 (inaudible), we are to look at alternatives to minimize. So yes, certainly, in this forum as a whole.

16 MR. DUNNIGAN: We are starting to run a little bit behind, so we have got to try to catch up.
17 Today, as I said, is focusing on rebuilding. And here is how we have the session planned for you today.

18 We are going to start with a presentation by
19 Dr. Powers on concepts of rebuilding, that builds on some work that he did with the folks last week.

20 But what we are going to do after that is have a series of presentations on the implication of these
21 for the various species and species groups that are being dealt with in these two documents.

22 After that, we are going to break out. And this is when we start getting into our extended
23 luncheon period. We are going to break out into four working subgroups. And you will have your choice
24 as to which of these groups to head towards.

25 But we are going to have a sheet for you to use to guide your discussions of ideas and output that
26 we specifically are looking for. For example, concepts of where you think referred target file masses are to
27 be, or SPRs. Or other threshold targets, transitional targets. This will sort of be an outline to help you

1 get their your discussions during the breakouts.

2 After the breakouts, which will close at about 1:00, then we will come back together, and each of
3 the four groups will spend the afternoon sharing what it learned during its breakouts with the rest of the
4 group, and we will have discussion.

5 So that is how the day is going to proceed. And we are going to start it off with a presentation on
6 rebuilding by Joe Powers. You are on.

7 DR. POWERS: What I am planning to do today is, as Jack said, introduce the process as I see it
8 in terms of what a rebuilding plan is. And first off, I wanted to present a couple of overheads. Now these
9 are a series of actual overheads that my assistant I believe gave up in Maine.

10 In essence, when you are talking about rebuilding, initially what you want to do is initiate a
11 rebuilding a plan is reduce the FMR, the fishing mortality rate. By doing that, one gets an initial increase
12 on the supply stock biomass.

13 And typically when you talk about rebuilding, you talk about stock for which the recruitment has
14 actually been depressed relative to a historical level. So the reason for increasing the supply stock biomass
15 is you want to increase your chances of increasing recruitment. Therefore, further increases in supply stock
16 biomass and recruitment meld together in terms of rebuilding the stock and the catches to something that
17 we call maximum sustainable yield.

18 You have to remember that there are really two elements that we are actually talking about here.
19 Reduce the fishing mortality rate. That is a human thing. This is a process of management. And increased
20 recruitment. Now that is influenced by humans in terms of increasing your chances by a supply stock
21 biomass.

22 But by and large, particularly with fish stock populations, it is going to be controlled to a large
23 degree by nature. You are going to be either lucky or unlucky, or hopefully medium lucky. So if you get
24 good year classes, things will return more quickly. If you get poor year classes, they will not.

25 But you still have to remember that in terms of the management, you have two dimensions of
26 maximum sustainable yield. One is obtain the most from each year class. If you take big fish or small
27 fish, some of the tradeoffs of that. And most can be defined in just about any terms. Not only yield in

1 weight, but yield in dollars, yield in employment, whatever the objectives are.

2 But then also MSY requires that you have periodically adequate or big year classes. So keep those
3 things in mind when I go through these sorts of examples.

4 But what I want to do now is give a quick example of a paper I published a couple of years ago, I
5 think that it was titled Fishers' Bench Marks for Recovery. What I am trying to do here is create a situation
6 that you are going to be dealing with when you develop recovery plans, and also explain some of the jargon
7 that I use.

8 In this particular example, this kind of exemplifies what goes on. What you have here is a time
9 series of yield, the red line over time. The green dotted line is a set of PAC decisions. And the blue
10 columns are the range of scientific buys in terms of recommended ABCs.

11 And the point that I am making here is nothing is certain. There is a range in terms of the
12 assessment. The GACs that are chosen may be risk prone. And the actual implementation of the catches
13 may not be perfect. So all of these things meld into why things can go wrong. Or in this case, it did not
14 go very wrong. But why there is a mismatch in terms of what sort of advice is offered, what actually the
15 catches are, and so on.

16 And typically, what happens, what you see in a situation like this -- SPR by the way is a measure
17 of productivity per recruit. But what I am showing here is the blue line. This is an example of the actual
18 trajectory of this SPR. This particular paper was developed in the context of the old 602 guidelines. I use
19 that terminology over-fish and yield.

20 But still within the new Magnuson-Stevens Act, we are going to have to go through the same sort
21 of characterization. We may actually change where these levels are. But nevertheless, we are going to have
22 these two levels.

23 Essentially, what we are talking about here is if you have a recovery, your first step is to try to get
24 it over some sort of threshold where you call it over-fished. But you also have a target of optimum yield.

25 Typically, in the MSY context, what we are talking about is a biomass target or something like
26 that. But in essence, in 1985 or 1986, when you start embarking on this recovery plan, typically how it is
27 approached is you can say well, what could happen based on our management that we do and on "average"

1 recruitment.

2 So if we were in that situation in 1985, the light blue line would be what I call best laid plans. If
3 you assume that everything went all right and the recruitment was about average, you get some sort of
4 gradual increase here over time. And in this particular case, even though that was pretty much what the
5 plan was at this point in time, what actually happened is a little bit less.

6 But there is another aspect of it too, and this is what I call what could have been. And what could
7 have been is because there were individual year classes that were fairly good in this period, you actually
8 could have had a larger increase in terms of what was going on.

9 So if you put that in the context of all three of the things. And this is what you plan, this is what
10 actually happened, and this is what could have been. Nature was better than we expected in some regards,
11 and the implementation was worse than expected in other regards.

12 So you have to keep these things in mind in terms of what it is you are trying to do for a recovery plan.

13 So I tried to characterize this in terms of these four items. What do you need in a recovery plan.
14 Basically, what is the management target, what are you getting to in terms of management. Where is this
15 threshold that is the more immediate thing. Hanover referred to this as the first line of defense or the second
16 line, I cannot remember. The first line of defense.

17 In other words, you have to get up over the threshold where there is an immediate concern. And
18 then you also have to get to transition to a target.

19 But there are two things that are really important to remember. What you need essentially is a
20 recovery trajectory. What kind of line do you want to go back to in terms of whatever metric you pick. By
21 that I mean if it is supply stock biomass, or total biomass or whatever, you basically have to have some
22 idea about what trajectory you want. Do you want to make it quickly here, go along like this and then go
23 up quickly or so on.

24 And the key point there is this recovery period. As was discussed yesterday, there are some very
25 definite limitations on that recovery period as well both legally and biologically. So this particular side
26 mentions the key points in terms of the recovery trajectory and a recovery period.

27 In a lot of ways, I consider the recovery trajectory a socioeconomic issue, but there are definite and

1 biological and ecological constraints. And those constraints are how quickly can the stock actually
2 recovery. Where it is something like a shark where it has a low value of reproductive capacity, then it is
3 going to take a long time to recover. Something like a sardine, which is not here, would take a short
4 period of recovery.

5 So it really means what sorts of biological feasibility, in my opinion, in any of the guidelines or
6 anything, as I know right now. But I would argue that in terms of a recovery plan, basically you want to
7 have actions that are more immediate, and at least give you a low probability of further deterioration. In
8 other words, you want to arrest what is going on in terms of the decline.

9 And you also want a high probability of getting some improvement. Now low and high, I think,
10 are properly scientifically, but they are issues that you have to think about.

11 The other thing that I mentioned here are inner milestones that are binding. In my mind, what I
12 mean by binding is you come to an agreement on a management plan or recovery plan. And basically, you
13 set up some inner
14 milestones maybe five years from now, and another one ten years from now, and so on, depending on the
15 particular kind of style.

16 And by having something binding, you would say look, we really have to hit those interim
17 targets. A
18 non-binding kind of situation may be yes, we have those interim targets, but what we are really concerned
19 with is the end points some twenty years from now. And so we can kind of wait and see.

20 What I suggest is whatever trajectory is picked that there ought to be some binding agreements
21 about what to do when you hit those five year points or three year points, or whatever you pick in terms of
22 the interim.

23 The recovery period. There have been a lot of questions and discussion about this. In my opinion,
24 there are some constraints about what can be done. Obviously, if it is too short, then it cannot be feasible
25 even if no fishing. If the recovery period is too short, then you just cannot do it, biologically you cannot
26 do it.

27 On the other extreme, I think too, is when you get too long into the future, it almost becomes a

1 science of sort of irrelevant. Because basically, you start projecting based on fish that have not been born
2 yet. You are projecting on the basis of the children of fish that have not been born yet.

3 And, you know, you start going to the point where yes, you can get some sort of average. But
4 you know darn well that there are going to be a lot of events in the next 25 or 30 years that are going to
5 change things. So it really becomes more of a statement of policy about what you want to do rather than a
6 statement of a projection in terms of science. So it seems to me that those are the sorts of extremes that
7 you are talking about.

8 Pamela yesterday talked a lot about control rules. Now this is not any different than control rules.
9 Actually, we had a stock assessment workshop in which we discussed a lot of these aspects in terms of
10 developing some technical guidance for the guidelines.

11 And I sort of made the point that I would prefer to make the point that I would prefer to talk about
12 things like thresholds and recovery trajectories. Because it seems to me that it is easier to communicate
13 those to fishing groups. But in essence, it is a complete translation. You could do the same thing in terms
14 of control logs.

15 In terms of the people that I was talking to, I was talking to scientists, and they opted for the
16 control logs. But nevertheless, they are equivalent concepts. You have to remember that.

17 Let me go back to this. Let's say that you had a trajectory where you wanted to increase along this
18 sort of path. Because of a set of circumstances out of your control, the biomass only got to here. But
19 something you might do is to return as quickly as possible to that path, and then go off on that path in the
20 future.

21 The converse would be if you have a good year class, and you start getting quicker regrowth. You
22 might at that point want to say well, given those sorts of situations, you may want to start paying back at
23 a little quicker rate, paying back to the fisherman. And so you will take that windfall profit in that
24 situation. So those are the sort of things you can do.

25 In the former case, what that means in terms of a control log is this is sort of a simple version of
26 a control log that we are talking about. And that is if you have a fishing mortality rate of about here, if
27 you keep it up about here and everything is fine, and this is the biomass that you want to keep it at.

1 But typically, what one would want to do is have a control log. Once you get to a certain point,
2 you want to reduce the fishing mortality rate, and have a continuous reduction at some point where it is
3 close to zero.

4 Now in this particular example, let's say that this is your rule. Once you get started, if you are in
5 a very low situation, what you want to do is have a reduced fishing mortality rate until you can get back up
6 in here. But let's say that is what you wanted to do. And something happened, and your fishing mortality
7 rate was too high.

8 Therefore, the biomass decreased. And that implies that the next time around that the biomass
9 decreased to this level, and your fishing mortality rate is lower in terms of the rule like that.

10 So this is the feedback cycle. And this is equivalent to saying yes, we want to come back on that
11 particular trajectory.

12 Once again, in terms of the control rule kind of debate. I just drew this schematically. But you
13 can have something that goes like this, or something that goes like that, and so on. And basically, there
14 are some issues there that you have to come to grips with that I would prefer to actually discuss in terms of
15 this. Because to me, it makes a little more sense.

16 (End Tape 4, Side A.)

17 DR. POWERS: There may be a slower recovery, and there may be a real quick one towards the
18 end, and so on. The converse of this, and this is in the biomass, the yields would be essentially related to
19 that. If you want to have a quick recovery, that means that you are keeping the yields lower for awhile, and
20 then quickly increasing those.

21 If you have a slow recovery, you are keeping the yields constant, the catches constant. And then
22 you are hoping to increase after that. And, of course, all of these things are in terms of uncertainty. But
23 nevertheless, you have to have that flexibility to address these.

24 Now this, I believe, was showed last week in terms of the bluefin. This is the kind of difficulty
25 you get into. Anyway this is the difficulty that we as the scientists really get into, I think. That what
26 really are the objectives when you have a recovery plan. You can say you want MSY, but how you get
27 there really means an awful lot.

1 And the advice that we offer in terms of management really depends on what your objectives are.
2 If your objective is to maintain sort of a steady force like this, that is a different set of advice versus
3 whether you want to get back to this level in ten years, fifteen years, twenty years, or whatever.

4 But what is very important, I think, is the structure of the debate in defining getting, if not a
5 consensus, some general agreement about what sort of shape these particular curves ought to be.

6 This is sort of a strategic plan, but there are also some tactical plans in this too. There are
7 tradeoffs between user groups, small fish versus large fish, how quickly you gain back. I mean all sorts of
8 coastal states preferences. In the ICCAT framework, the individual states.
9 So, you know, there is an awful lot of debate that needs to go on there too.

10 From a scientific standpoint, and also I think, well, really from a management standpoint, we
11 would argue that what you is really needed is some sort of default sorts of plans, default control rules,
12 default recovery plans, or recovery types of trajectories.

13 What I am talking about default here is basically something in writing that specifies the rules that
14 have to be followed given that you have no other information. Because typically, in a new management
15 situation like this, where there is an awful lot of debate about individual user groups and stuff, that that
16 debate can go on for a long time.

17 And if there is nothing in place to act on in terms of management, you could literally go two,
18 three, four years or longer before you come to some agreement about how this is supposed to operate. And,
19 of course, the situation changes in that interim.

20 So I think from a management standpoint, it is important to establish some defaults to initiate the
21 debate. I think that from a scientific standpoint, if you are less concerned about some of the details of that
22 debate, who the winners are, and who the losers are, and that sort of thing, but rather there is a default that
23 can initiate some sorts of action. And it also forces that debate to come to a close a little more quickly
24 hopefully.

25 The other aspect is you need to convert things into a medium term problem. This is what I meant
26 about having interim milestones. If you have a long term problem, in which you say all right, we are
27 going to recover in twenty years. But basically, anything that we do now can be adjusted five years from

1 now. So therefore, we can basically make our management decisions today based on an action that you say
2 you are going to do five years from now.

3 Now that sort of thing, we need to develop those interim milestones where we can actually develop
4 the management. It is important scientifically too. Because as I mentioned before, once you start getting
5 pass three to five years in fish stocks, you are talking about predicting future recruitment. And as I
6 mentioned before, nature has a lot to do with that too.

7 So what you want to do is convert this on the short term problems, so we can update the advice.
8 But the scientists' offer can be more meaningful as well.

9 So remember, I think, in terms of the discussions today, these four items. You know, what is the
10 target, what is the threshold. And the intense debate is what do you really want to do in terms of a recovery
11 trajectory, and the movement toward the target.

12 So at that point, I think I will stop the discussion in general before we go into the groups.

13 MR. DUNNIGAN: Thank you, Joe.

14 Nelson.

15 MR. BEIDEMAN: Joe, is there any scientific standard, or advice, or what have you on immature
16 catches? Now we know that we have immature movement tuna catches, and we have got immature
17 swordfish catches. But we do not
18 know -- you know, it is an unobtainable goal to say that we are going to cut out all immature Atlantic
19 bluefin tuna catches. I mean that would not be acceptable.

20 But at the same time, you are not going to cut out all immature swordfish catches. You catch a
21 few small fish everywhere, aside from any discrete areas.

22 But what do the scientists think in a rebuilding plan that is healthy?

23 DR. POWERS: It is kind of a chicken and egg argument. But for equal levels of reduction in the
24 fish and mortality rate, you get more get quick increase if you catch the small fish.

25 MR. BEIDEMAN: But is there any in general over other fisheries, does 30 percent seem
26 scientifically and biologically acceptable, or 50 percent?

27 DR. POWERS: Well, typically, the way that fisheries look at this, it is what we call yield per

1 recruit. And that is what I meant by getting the most out of a year class in the fishery. And basically, for a
2 lot of fisheries, and bluefin and swordfish are one, if you reduce the catches of small fish, then you would
3 actually increase the overall yield in weight per recruit.

4 In other words, the fish are growing faster than they are dying from natural mortality when they are
5 young. And once they get older, they are dying faster than they are growing. And for some point, just
6 about for every fish, there is a switch over to that.

7 And so if you were perfect management, you could say all right, fish up to six years, five months,
8 and two days, you would not catch them. And once they are older, you would catch them. And you could
9 make some sort of judgment.

10 But, of course, nothing is that clean. And there is economic value that is generated by small fish.
11 And so there is nothing magic about yield and weight. There is yield in dollars that is equally as important.

12 MR. BEIDEMAN: What do they do for like bluefish? I am not sure if pollack is flagellant or
13 not.

14 What do they do for species like that, is it somewhere in the range of 30, 40, or 50 percent?

15 DR. POWERS: Of the reduction in catch?

16 MR. BEIDEMAN: I am talking about immature catches. Right now, we have a situation of 79
17 percent immature bluefin tuna catches in the United States. And 57 percent immature swordfish catches in
18 the United States. And on the one hand, we are having people say oh, 57 percent, man, we have got to
19 eliminate that whole fishery, wipe it right out.

20 And on the other hand, some people are saying we ought to increase that. The 79 percent, that is
21 no problem, we need more.

22 DR. POWERS: The way to look at it is how much do those fish contribute to the declining
23 biomass when they get there.

24 MR. BEIDEMAN: But we need scientific in place, because obviously this debate has not gone
25 anywhere politically for ten years.

26 DR. POWERS: I cannot give you entirely scientific advice, because in essence there is going to
27 be some tradeoffs there about who do you want to have the fish. In the case of bluefin, do you want to

1 have a recreational situation of Mid-Atlantic that generates income in terms of charter boats and that sort of
2 thing. Or do you want to have a large fishery in Massachusetts.

3 Now admittedly though, if you are looking for recovery, probably one of the quickest ways to do
4 that is to reduce the catch of small fish.

5 And in those other fisheries you are talking about, one of the ways to deal with that, traditionally
6 tried to deal with that because they are trawl fisheries, is (inaudible). In other words, you just eliminate the
7 catch altogether. But with the flagellants, that is a little hard to do.

8 So whatever is chosen in terms of tradeoff, there are going to be issues that if you release fish are
9 they dead when you release them, and things like that.

10 And one could consider closed areas in terms of reducing small fish catches, but that is part of the
11 decision to be made.

12 MR. DUNNIGAN: We have Pete Jensen, Maumus Claverie, and Peter Weiss.

13 MR. JENSEN: Joe, I like your approach. I hope your agency is listening to you. I think that
14 even though we are sort of stuck with MSY, that reflects a perfect world obviously. And perhaps, the
15 makers of our laws make too many assumptions about what could be done.

16 If I could invoke a medical analogy, I would say that the first thing that a medical doctor or a
17 medical team does is stabilize the patient. And I think that we probably cannot talk about what the perfect
18 patient looks like until we know what we have to do to stabilize it.

19 And so I would say that this group needs to talk about and know what has to be done to stabilize
20 what is going on, and look at what the sustained yield is from the current stock levels.

21 I guess that my question to you, Joe, is I think that they can give us that, can they not, to say do
22 a risk analysis and here is what the current stock levels are, and here is what we think the fishing pressure
23 is, and here is what you would have to do to stabilize it. And once we get it stabilized, then we can talk
24 about a rebuilding schedule. Because there are always tradeoffs, as you mentioned, and social and economic
25 decisions.

26 DR. POWERS: Yes. But I would remind people that once you stabilize it, you need this debate
27 about what to do next. Because essentially, what happens when it stabilizes, if one set of people's

1 objectives are to keep it pretty close to where you are now, that is quite a bit different than somebody else
2 saying that I want a 10 to 15 percent increase every year.

3 And the catches you would allow in that situation are very different. It is basically do you want it
4 now or do you want it later.

5 MR. JENSEN: I agree. We all deal with that all of the time. The first thing you do is try to
6 stabilize what you have rather than an over-fish situation.

7 DR. POWERS: Well, I would agree with that. But I think that if you are going to address
8 recover, you have to develop a longer term, or you are going to be wobbling around in the stabilization area
9 for a long time.

10 MR. DUNNIGAN: Mr. Claverie.

11 MR. CLAVERIE: Thank you.

12 Jim, I want to ask you to discuss something further. But before, I want to say that one of the
13 medical things that I read recently was that Princess Diana would be alive if they were cutting her open and
14 fixing her instead of stabilizing her.

15 Could you go into a little more detail about the threshold line, is that a feel good line, or does that
16 have some meaning, what does it really amount to?

17 DR. POWERS: I think that it has some meaning. It has legal meaning in terms of the Act.
18 Basically, in this case, the threshold with what Pamela talked about yesterday was biomass MSY, or
19 biomass in which you could recover within ten years. That is basically a legal constraint that says that a
20 whole set of circumstances have to be put into operation in terms of a recovery plan. Yes, ma'am. You are
21 still concerned if you are not above the target, but you are less concerned.

22 But what you are really asking though is does this happen to biological.

23 MR. CLAVERIE: And also a practical effect on the fishing.

24 DR. POWERS: Yes. In some sense, it does. Yesterday, Hal had talked about one half BMSY
25 which he was applying in terms of reproductive stocks and how much they would fluctuate. I have also
26 heard the argument that one half BMSY is essentially very similar to what we define as over-fishing
27 definitions for a lot of fisheries in the old 602 guidance.

1 So it is basically a level where below that you are going to start worrying about recruitment
2 actually declining. In fact, in many of the cases that we are talking about well below the threshold, there
3 are indications that recruitment has declined. So what you are trying to do is rebuild stocks up to levels
4 that will support more recruitment.

5 So there are both legal constraints in terms of defining what this is, and there are also some
6 biological consistency I think with the old over-fishing definitions.

7 MR. CLAVERIE: Is the difference between the red line and the green line the difference that is
8 being discussed as to what the new guidelines should say that a stock is over-fished if it is below the red
9 line, or it is over-fished if it is below the green line, is that the problem that is going on?

10 DR. POWERS: (Inaudible).

11 MR. CLAVERIE: The problem is that the guidelines have not been published, because that
12 philosophical discussion seems to be taking place.

13 DR. POWERS: Well, yes. Let me back up. The issues are really the ten year. The limitation
14 says that you have to recover a stock within ten years. It sort of defines this level right here. And in fact,
15 there are some cases where you cannot recover in ten years.

16 Secondly, MSY is a target that Pamela talked about before. There is a question because the
17 functionary language in those agreements would indicate that the target was a limit. In other words, you
18 should never go above that. So maybe you are operating instead of right about there, you are right around
19 in here.

20 Those are the kind of debates that I think are going on. But basically, the target more or less, as
21 Gary indicated yesterday, in an ICCAT context, the target is MSY. In the Magnuson-Stevens Act, they are
22 also indicating MSY as a target. Most of the debate is how you deal with uncertainty associated with that.

23 MR. CLAVERIE: Well, you just confused me. When you said go above that line, that red line,
24 on that particular chart, isn't the red line a biomass?

25 DR. POWERS: Yes, it is a bit confusing.

26 MR. CLAVERIE: So you say that you cannot fish at a rate that would reduce the biomass.

27 DR. POWERS: Yes.

1 MR. CLAVERIE: But what I want to know is an
2 over-fished population, under the new Magnuson-Stevens Act, is that the red line or the green line?

3 DR. POWERS: It is the green line. Basically, what Gail was talking about yesterday --
4 remember her hand drawing with all of the quadrants. This would be the situation where biomass was
5 below what would be considered over-fished.

6 The rate of fishing -- well, let's leave it that way. The green line is basically what you are talking
7 about in terms of being over-fished.

8 MR. CLAVERIE: But the rate of fishing is one that has to get it back up to the red line in no
9 more than ten years unless you have got a reason?

10 DR. POWERS: Well, the reason that I am hesitating is it really relates a lot to how that is going
11 to be defined.

12 MR. CLAVERIE: Aha. So that is the key issue now as to what the guidelines are going to say.

13 DR. POWERS: That ten years is a big issue. For several of the stocks that we are dealing with,
14 including at least one in this arena, that ten years is an issue. What do you do if it cannot do it in ten
15 years.

16 MR. CLAVERIE: So we are languishing in limbo depending on which line we go, red or green,
17 right?

18 DR. POWERS: No.

19 MR. CLAVERIE: When the word comes down from above.

20 DR. POWERS: You have both of these. You will have a threshold of being over-fished, and you
21 will have a target by default. And you may argue in terms of developing of stylizing the recovery plan, you
22 may argue where within this framework that might be, and where this one might be. And by and large,
23 those are the constraints that we are dealing with.

24 The target of what you really want out of management versus the threshold where you are trying to
25 get out of a bad situation.

26 MR. CLAVERIE: I understand your point. I respectfully disagree.

27 MR. DUNNIGAN: Peter Weiss, and then Charlie Moore.

1 MR. P. WEISS: Given that there is a certain amount of uncertainty in the assessments, which
2 you certainly agreed to, I guess, and the fact that you said that adjustments can be made, using the every
3 five years I guess adjustments according to the assessment, according to the new assessments.

4 And with the fact that the trajectory of bluefin tuna is going up every so slightly certainly but
5 certainly is on the up trend, and with the fact that you do assessments every two years, what is the problem
6 with the status quo right now with the assessments being done every two years, with adjustments possibly
7 being made. I do not think that the stock is going to collapse between assessments, what is your problem
8 or anybody's problem with doing adjustments as you go along as the trajectory keeps on going in the right
9 direction?

10 Because there is nothing that says two years from today that trajectory will start to spike up, and
11 five years from today it may really spike up; and vice versa, it could go the other way also. But at least it
12 gives you the opportunity to look at it down the road.

13 Is there a problem with that?

14 DR. POWERS: No. In fact, you will do that. That is what I am suggesting here. When I say
15 (inaudible), that is basically longer or medium term bench marks. In essence, whatever rates of making a
16 decision -- what I mean by that is right now, as you mentioned, for bluefin, you do assessments every
17 couple of years.

18 Those debates will go on. Those management debates will go on. But there has to be an
19 underlying long term policy, I think, to deal with. Because if you do not have a trajectory that you would
20 like in terms of some sort of agreement of where you are going to go, then basically you are going to have
21 a series of short term decisions. And you have the chance of sort of drifting off in one direction or the other
22 without meeting the objective of recovery.

23 And so essentially, in some management contexts, some arena, you would argue that the status
24 quo was good enough. And basically, as long as you are not worried about things going extinct, then you
25 could operate around the status quo.

26 But according to the Magnuson-Stevens Act, basically you are saying that recovery is paramount.
27 So you have to move in that direction.

1 MR. P. WEISS: If in fact this species, and I do not think that this species can recover in ten
2 years, and I think that everybody agrees to that, nobody says when the recovery has to be. I mean after ten
3 years there is no other time frame that I know of. So if it is longer, it is going to be longer. But as long
4 as you are going in the right direction, I do not see what the problem is really.

5 DR. POWERS: The reason that I am hesitating once again is because I do not want to sort of
6 preclude what the law says. Basically, I am just sort of repeating what the law says.

7 MR. P. WEISS: I understand.

8 DR. POWERS: And there are biological constraints, as you mentioned, that bluefin tuna would
9 not be able to recover within two years. So there is an important issue there as to what to do.

10 MR. DUNNIGAN: Charlie Moore.

11 MR. MOORE: I am still having a hard time understanding the graph up there of what you really
12 mean by recovery period. It seems like to me that the way it is drawn that (inaudible) becomes in a sense
13 the target, is the stock recovered at that point.

14 DR. POWERS: I am sorry. This was just sort of diagrammatic. The recovery period, this
15 vertical line ought to be up where it crosses up here. You are right about that. The first line of recovery
16 that you are trying to do is get above this threshold.

17 MR. MOORE: It seems like to me when we are talking about a recovery period that if a species
18 cannot recover in a ten year period, that everything conceivably possible needs to be done management-wise
19 to have it go in that direction, not the other way around.

20 MR. DUNNIGAN: We are still talking theoretical things, and we are going to move in a couple
21 of minutes into application of this a little more directly. I just want you to know where we are going. We
22 have a couple more minutes for this discussion. David Wilmot.

23 MR. WILMOT: Joe, thank you for clarifying that. That was exactly what I was going to ask. I
24 think that Mo was confused. And for that reason, I certainly was. The recovery period, as it was drawn,
25 was indicating that the threshold was the target. And that certainly is not what the Magnuson-Stevens Act
26 states very clearly.

27 To go back to the medical analogy, not that I like to use this, but what Peter is describing of the

1 trajectory of the arrow, is indeed stabilizing the patient. If one knows that the trajectory is positive, you
2 can argue that the patient is not at risk of dying.

3 The flip side is, if that arrow is barely going up in a positive direction, you are going to basically
4 agree to keep that patient in the emergency room, and not take it to the operating room for an awfully long
5 time.

6 Where we are right now with bluefin tuna, for example, is about 65 years. I know that these types
7 of projections do not hold up scientifically to extend it out that far. But, Peter, that is basically what we
8 would be looking at for bluefin, if we stayed on the current trajectory.

9 MR. P. WEISS: Sounds great, sounds great.

10 MR. DUNNIGAN: Rebecca.

11 DR. LENT: Just a quick sort of accounting type question. Joe and Pamela have both mentioned
12 that there are different methods that you can use when you are measuring the biomass, like spawning for
13 recruit or spawning stock biomass, or the biomass.

14 Can you give us some examples for some of our
15 over-fished highly migratory species, which ones we might use and why, is it a data problem, or is it just
16 something relative to the nature of the fish?

17 DR. POWERS: Well, typically, most of these things, we can relate it to biomass. Biomass
18 means the whole biomass, young fish, old fish, or whatever. So often, we convert that into spawning
19 biomass, meaning that segment of the population that actually contributes to the reproduction. It is a
20 smaller number, but it is more meaningful in terms of the overall productivity.

21 It has not been used in ICCAT, the monitoring of the stock. But in our domestic management, it
22 is SPR, which is spawning potential ratio, which is basically the amount of reproduction that an average
23 recruit produces over its life span. So it is a measure of productivity.

24 Now that is a little bit different, because that also relates to the fishing mortality rate. But that
25 sort of metric is showing what the changes in the population productivity are relative to reductions in
26 fishing mortality rate or changes in fishing mortality rate.

27 As I said, typically, the ICCAT related species is focused more on biomass and spawning biomass.

1 The reasons why you might pick one over another is that you do not know enough about their reproductive
2 behavior or something where you might use biomass as sort of a surrogate.

3 Pamela mentioned some other things yesterday about proxies for these sorts of things. I think
4 conceptually that what you want to deal with (inaudible) biomass, and perhaps in terms of some
5 reproduction. But there are practicalities here.

6 MR. DUNNIGAN: Russ Nelson.

7 MR. NELSON: I would like to amplify a bit on what Joe said about extremely long recovery
8 periods. There has been increasingly, particularly in the social literature that looks at fisheries managers, a
9 lot of criticisms, in that there is a real lack of accountability on the part of the people who are in charge of
10 making decisions. That is they do not get rewarded if they succeed, and they do not get punished if they
11 fail. Basically, it tends to be that if they do not get beat up too much, that is the most positive feedback
12 that they can get from management.

13 Particularly, if you extend management scenarios twenty or thirty years in the future, you ensure
14 that no one who was involved in the decision making at that time is going to be around with a record as to
15 whether or not that works or not.

16 MR. DUNNIGAN: Ray Bogan.

17 MR. BOGAN: I am still a little screwed up from the Diana analogy. But the point is that if they
18 drove a little slower, I do not think that they would have worried about the surgery. I think that we have
19 got to talk about the recovery period. And I think that we are all in agreement here that that is within our
20 purview. I think that ten years is impossible, and we have pretty much acknowledged that. Let's try to find
21 out what the period is, and the extent to which we can effect that. So my point is that I just think that we
22 should go into the recovery period.

23 A PARTICIPANT: Not for all of the species, but you are just talking about bluefin?

24 MR. BOGAN: I am just talking bluefin, because I think that is where Princess Diana died.

25 DR. POWERS: Are you suggesting a precautionary approach for management?

26 MR. BOGAN: A precautionary approach. However, a precautionary approach within two
27 purviews. One is the recovery time period within which we restrict the fisherman. But the second is that

1 on bluefin, for example, we follow Nelson's recommendation to talk about further restrictions. The two
2 things are compromised.

3 One thing, of course, is the industry. But the second thing is the database, which we are required
4 under ICCAT to maintain. Now he can argue the same thing with regard to undersized swordfish. But there
5 are alternative ways of getting that data.

6 So I am just suggesting now let's get into a little bit into rebuilding, and let's talk turkey in terms
7 of years and the whole shebang.

8 MR. DUNNIGAN: Someone criticized me yesterday for shouting at you. Let me say I am told
9 that the folks behind us, given the configuration that we have today, are having some difficulty hearing.
10 The tape is picking up fine, but a lot of people behind you cannot hear you. So speak up and shout away.

11 We have Nelson, and then Russ. And then let's move ahead into the species presentation.

12 MR. BEIDEMAN: What we did not have up there is some of the doubt. We did not have the
13 confidence intervals that I guess are somewhere in between here and there. And what kind of standards,
14 whether it is the median or the high or low side, or what have you.

15 How long does it take for a trend line to be somewhat accurate, I mean is it the age span of the
16 fish, or is it half the age span, you know, long lived or short lived. Because that is some of the guess
17 work. It would be easy if all we had to do is decide on what kind of trajectory that we wanted to have, and
18 we were confident of that trajectory,
19 et cetera.

20 And in the meantime, while there is little confidence, we get into such things as the average size,
21 whether it is up or down, or what have you.

22 DR. POWERS: Because I was talking about a generic fish, I know what is happening to that
23 generic fish with certainty. But basically, you are right. When you get to the specifics, as I mentioned
24 before, there are uncertainties in everything in terms of the assessments, the criteria that you are trying to
25 deal with, and so on.

26 And essentially though, that is a fact of life. It is not only in the sciences, but it is also in the
27 implementation and so on. So what you are trying to do is develop management strategies that will tend to

1 be robust in those situations.

2 By that term, what I mean is that basically they will tend to work. Even though you might not be
3 perfect, they will tend to work.

4 MR. BEIDEMAN: In particular, we are dealing with a new type of FMP. We are dealing with a
5 FMP that is a similar but different species. And we need some kind of standards, you know, a least
6 parameters to go by as far as are we going to go by medium values, or are we going to go by 90th
7 percentile values. What type of standards are we going to set looking at these species.

8 DR. POWERS: It is a little more obvious when you are talking in the context of an individual
9 species.

10 MR. BEIDEMAN: I know. But to have it arbitrary, and we are going to do this for one, and we
11 are going to do that for another, you are getting right back to we are going to do political management.

12 DR. POWERS: Ideally, I would like to see some consistent policy about the amount of risk that
13 one would have. I am not sure that can be achieved today.

14 MR. NELSON: As I understand, there is a great deal of focus on ten years. (Inaudible), basically
15 the biological capabilities of an animal or stock.

16 Given that, what can you tell us, what advice can you give us on looking at (inaudible) of stock,
17 life expectancy characteristics, the natural mortalities, what sort of guidelines are there for looking at
18 animals? You simply cannot force a recovery in ten years because of the way they live, and grow, and
19 reproduce.

20 DR. POWERS: You mean what really defines the biological constraints about recovery?

21 MR. NELSON: What defines constraints, (inaudible); and given those constraints, what
22 guidelines can you suggest to allow us to set a realistic time frame for recovery?

23 DR. POWERS: What we mean by life history, and Russ is referring to, is basically what the
24 natural mortality rates are, what the major maturity is, and so on like that. Typically, all of these things are
25 related to each other.

26 So if you have a low natural mortality rate, low might be something like 15 percent a year that
27 died from natural causes, or 10 percent a year or something like that, that is also often related to a high age

1 of maturity. In other words, they go a number of years before they start maturing and start reproducing.

2 Sharks are the most typical example of this. You know, sharks, the arguments are whether they
3 start reproducing in ten years or twelve years, or something like that.

4 So those things are quite often related. And you take something like a yellowfin tuna where their
5 natural mortality rates are probably pretty high, maybe 70 or 80 percent a year. They grow very quickly.
6 Essentially, they do not get much older than seven or eight years, or something like that before they are
7 pretty much all gone even with no fishing. And so they are very dynamic.

8 The tunas are different from sharks in one other aspect too. Tuna produces lots of eggs. And so
9 they have the potential for very high year classes if all of the environment is good, or very low year classes
10 if all of the environment is bad.

11 But on average, every mother and father is going to produce two offspring. All of this stuff about
12 how quickly they die. On average, if the population is going to stay the same level it is, then every mother
13 and father over its lifetime is going to produce two offspring.

14 Now the difference with sharks is they do not have lots of eggs. They produce pup gestation
15 periods. And so they have very low reproduction potential. So in terms of sharks, there is probably more
16 concern in terms of that. If recruitment does go down there, they do not have really much potential for
17 getting back quickly enough.

18 Now in some sense for some stocks, and it is probably less so for the tuna, except maybe
19 (inaudible). ICCAT does not deal with (inaudible) very well at all either, because there are lots of
20 inabilities of measuring them.

21 But basically, you can make some instances about how quickly something might grow back just
22 based on its growth rate. Because there are relationships between growth rates and natural mortality rates,
23 and basic observations about how old they are and when they start reproducing.

24 So that could give you a feel for how dynamic the populations are likely to be.

25 MR. NELSON: What Russ is referring to is for several of the species in the Gulf Fishing
26 Management Council, recovery period is defined in terms of generation time, in terms of multiple
27 generation time. Basically, generation time is very much related to the natural mortality rates. If you

1 have a high natural mortality rate, the generation time is going to be low and vice versa.

2 And by and large, you can apply that in terms of that way. It is not the longest live animal. You
3 kind of weight it by the reproductive rate. But that has been the basis for defining a recovery period for
4 some plans.

5 MR. DUNNIGAN: The next part of our agenda is to take a lot of this discussion, and try to apply
6 it specifically to some individual species context. But before we do that, just a housekeeping thing.

7 Does anyone have a blue Chevy Metro, UFD64D? If you do, somebody left their keys in the
8 trunk of the car, and they have them at the front table for you.

9 MR. DUNNIGAN: David.

10 MR. WILMOT: This is for Rebecca. I hesitate to raise this, Rebecca, because I do not have a
11 solution. At the very first meeting, I objected to having breakout groups for the simple fact that the
12 conservation community has a very small number of people around this table.

13 For example, today we do not even have enough people to cover the four breakout groups. And
14 many of us care about all of these species that we are working on. I do not have a solution to this, but I
15 have to raise it and see if we might find one right now. Otherwise, we are going to have to make a decision
16 to actually ignore one of the breakout groups today which is very, very disturbing.

17 MR. DUNNIGAN: Is there any comment on that?

18 MS. HASS: I have to agree. I think breakout groups on fish are entirely inappropriate, as they
19 exist together everywhere and (inaudible). And if you break this out, you do not get a realistic picture of
20 what is going on here. You can call it separate fisheries, but it is really one fishery. And we have to
21 handle this. But breakout groups, I think, will be a detriment.

22 MR. DUNNIGAN: Are there other comments?

23 DR. LENT: You are right, David, I do not have an answer for you. I am trying to reach a
24 reasonable compromise here.

25 First of all, Marsha, to answer your question, we are going to deal as a group tomorrow with some
26 of the analyses that we have on hand to address the issues of bluefin catch and juvenile swordfish. So we
27 will all be together to talk about that.

1 We went over this agenda time and time again. We thought that we could make it a four day
2 meeting. We could do combination. What we tried to come up with is a compromise where there are two
3 hours in each breakout group. And then this afternoon, we all together for four hours to go through these
4 same issues.

5 It does not mean that breakout groups, David, come forward with a solution. That is not it.
6 There are no decisions made. It is some people putting ideas together trying to come up with alternatives,
7 and then sharing them with the entire group. We tried to reach a compromise. I understand your problem
8 and your objection to this format. This will try to minimize this as much as we can in the future.
9 But we have got a lot of work to do. We have got to get this done by September. And this is a
10 compromise. We will all be together this afternoon for four hours, five hours, or more if we need do, to try
11 and cover this.

12 MR. DUNNIGAN: On that issue, Rob?

13 MR. KRAMER: Yes, on that issue.

14 What, Rebecca, is your expectation when we break up, is it going to be a range of alternatives, or
15 a consensus recommendation, or are you going to have little votes and tussles, and you are going to come
16 back and say we said this was right six to three, and this was wrong three to four?

17 DR. LENT: We tried to address that very issue after writing a work sheet that Jack will be going
18 through with you before you go into your breakout groups. And we just tried to focus on the topics on
19 which we would like the group to come up with a list of alternatives. A recovery period, a target, what are
20 some of the metrics that we have been using for the species. We have a general guide as to what sort of
21 product we would like out of these.

22 MR. DUNNIGAN: All right. We are going to move into the species presentations then on
23 rebuilding. I think that we are going to be led through this by the center staff. I am not sure quite how
24 they want to deal with it. But I see Jerry Scott is ready to go forward.

25 DR. SCOTT: Given that, I was volunteered to come forward first.

26 MR. DUNNIGAN: Jerry had volunteered to go forward first.

27 DR. SCOTT: I am going to give a brief summary. The way we are going to approach this is

1 four different people giving you some information on the items on the agenda for four different species
2 groups. I have volunteered for sharks for a couple of reasons. I was there for most all of the shark
3 assessment workshops, and I could not find anybody else in the office this time around that I wanted to do
4 it.

5 Following after me is (inaudible), who will talk about bluefin tuna information. Now he has had
6 some practice at the last meeting. So it will be a reiteration, but a brief one, of the material that was
7 presented last week.

8 Following that, Steve Turner will give a discussion on swordfish. And after that, Eric French will
9 talk about billfish information.

10 So that is kind of the order that we will present the information in. And let me put up the third
11 graphic that I have. These are attempts to summarize. This comes out of the 1996 shark evaluation
12 workshop report. It is kind of a summary figure of the status of --

13 (End Tape 4, Side B.)

14 MR. NELSON: -- projectory, and this trap here which is an estimate stock size across time. One
15 on the right hand side -- upper right hand side is, again, a production model fifth captioned, tempered
16 information over the time period 1981 through 1996 with a slightly different formulation of the capstraight
17 (phonetic) information which is used in the model.

18 Another program, that's the next longer time stream, is what's called the large postal shark
19 maximum livelihood method estimate of stock size, and that makes use of different types of catch and effort
20 information and makes use of information about average size fish in the catch. And this is the time
21 projectory that results in that particular application. You notice that it diverges a little bit in scale.
22 They are similar in the terminal period. The patterns are roughly similar, but in terms of your most recent
23 projectory there's some difference between that particular model and these other models.

24 The other two, the one with the closed squares represents the large postal shark maximum
25 likelihood estimation for the period 1994 through 1955, so restricting the time series that was looked at.
26 This happens to be an examination of black tip sharks, and this happens to be an examination, I think we
27 have up there, of -- I guess we just have black tipped sharks up there.

1 On the next panel we have kind of the range of estimates of recent fishing mortality rates to come
2 out of these various models. You will see the patterns as we go, and the bottom figure which I think you
3 can see all right. I couldn't see at all back, so I picked it up a little bit.

4 On the bottom we have what we are calling the estimated proportional rates of biological increase,
5 the amount of the -- in essence, the annual rate of the expected increase of these shark stocks that we are
6 looking at based upon the information that we have available, and they are primarily in the range -- this is a
7 result 4, I think, black tip, sand bar sharks. So they are generally in the range, depending on the model
8 application, of around .1 to .25 or a bit higher than that.

9 I think one thing for those of you who aren't familiar with how the shark information sets exist,
10 we are looking at a situation where really we have a management group that's based, I think, on 20 some
11 different species, so this is kind of a graphical representation of the different types of sharks that are
12 represented in a recreational data set, which I think is the red, MRFSS. These happen to be the route of
13 frequency of different types of sharks that are encountered in the recreational survey up and down the East
14 Coast and the Gulf of Mexico, and the green represents the relative frequency of different types of sharks
15 that happen to be encountered in a directed long line fishery along the East Coast, the Southeastern U.S.,
16 the specimens that's been collected by the folks, at least, it's in this room, Dr. Burgess. It's a long line
17 observant program that provided a lot of this information.

18 There are far more observations on this side than there are on this side. The animals actually
19 handled (inaudible) by scientifically trained people, but this gives you an idea of what those -- different
20 types of fisheries. The highest proportion in the commercial fisheries relates to sand bar sharks. In terms
21 of some of the other species, you see the contributions and you see high proportions of things like
22 (inaudible) in the recreational fisheries, pig nose sharks, whatever that top one is, shark nose sharks. A lot
23 of these things you can't see the actual bars sticking out because in a proportional sense they are small.

24 Anyway, the information that we have with respect to, I think, what the agenda asks for the MSY
25 and fishing mortality rates with respect to MSY really in the most recent set of analyses come out of the
26 production models that we've looked at. But one of the inputs, of course, to the production modeling is the
27 catch (inaudible). As you all know, there is limited information about the species, specific catches for

1 sharks. This -- and there is also information from both the recreational side of things and the commercial
2 side of things.

3 FEMALE PARTICIPANT: (Inaudible).

4 MR. NELSON: Yeah, I guess in your documents this is page 3 of the 1997 reports of the stock
5 evaluation report. I think you have it in your binder. I just put it up to give you an idea that this is what
6 the catch time series in terms of the production models sort of approach. In terms of relative break outs in
7 the recent time period -- oh, about 100 -- a diminishing amount from 190 to 117,000 fish. We are using
8 these calculations in numbers of fish rather than biomass for a number of reasons, and in the recreational
9 sector we are looking at a number of things about the order of 160 to 180,000 fish as well. Here an even
10 split (inaudible).

11 In terms of sorts of evaluations we have been able to do, we have looked at a couple of things,
12 what we are calling recovery rates. These are short-term projections over a range of catch assumptions and
13 what we did in '96 was to look at percentage reductions relative to what then was known, which was the
14 1995 catch. This was the 1996 shark evaluation. It's a report, although a graphic doesn't exist in the table.
15 This is easier to explain in a graphic.

16 We have got this difference where (inaudible), but this gives us a sort of a model-base definition
17 into the future of what we would expect the stock size to be relative to 1996 if one were to assume these
18 varying proportions of the 1995 catch into the future. And, obviously, values greater than one imply
19 there's some gain in stock size. Values less than one imply that there's a further reduction in stock size.

20 In addition to that -- again, I have a table, not a graph, but I can give everybody copies of this
21 graph if they want. This is giving us an idea of the likelihood of the event occurring in the graph above
22 based on a large number of simulation trials reached in different models that are -- they are the models that
23 you saw previously. And so with a percentage of the 1995 catch on this axis, is this the frequency of
24 outcomes of the stock size in 1999 preceding the stock size of 1996. So it was one case which happens to
25 be the likelihood method model affixing the data from '86 through '90 whatever, relative high probability of
26 that event occurring. On of the other models, the probabilities of it would vary across the -- assume
27 proportional reduction.

1 Now, getting back to production models sorts of things, this doesn't exist in a picture in any of
2 your materials, but it exists in tables. This happens to be the unweighted information from '81 to '95 and
3 '81 to '96, and this is the sorts of projections that results from that particular production model fit to the
4 technical information that we have. And if you look at it, you get some information about what the
5 production model is telling us. It says that there drawing one would be what we are calling maximum
6 sustainable catch. Then, this formulates or would be the numeric equivalent to a yield, but is not a
7 biomass-based thing in the fish (inaudible). But it is saying that this is the projectory that the model C is
8 based on, it is something that we use to fit in the data, and it says that in about 1990 we were at the
9 number of fish equivalent to maximum sustainable catch -- that would produce maximum sustainable catch.
10 It says things have gone down since that time. It also gives you an idea of what, based on the estimated
11 rate of reproductive capacity of the sharks, what sort of response you might see over the various levels of
12 catch. In essence, this particular model suggests that there is a break point in terms of needs and losses
13 somewhere around 70 percent of the 1996 catch, and that's with this particular model formulation.

14 If you look at the catch rate information slightly differently, that generally results in terms of 70
15 percent of the catch did not hold up. Break point then would be somewhere around 60 percent.

16 FEMALE PARTICIPATE: (Inaudible).

17 MR. NELSON: Pardon me?

18 FEMALE PARTICIPANT: What is the second graph?

19 MR. NELSON: This is based on the weighted catch rate information.

20 FEMALE PARTICIPANT: (Inaudible).

21 MR. NELSON: It's weighted by measure of the decision of the individual observations that went
22 into -- for instance, the catch rate time series is used for (inaudible), so that's all that means.

23 MALE PARTICIPANT: Bill, is the percent of catch in pounds or in --

24 MR. NELSON: Pardon?

25 MALE PARTICIPANT: Is the percent of catch in weight?

26 MR. NELSON: No. All of these calculations are based on numbers of fish so it would be -- I
27 think in 1995 the estimated catch was the order to 360,000 fish or thereabouts. It is a ten-year table, but I

1 will read it off here, 300 -- on the order of 367 or 370,000 fish, so the percentage was on that amount.
2 Now, since that time these are the information sets that relate to the models that give us our data about
3 productivity and what we are calling equivalent maximum sustainable yield. In essence, we are saying that
4 things are below maximum sustainable yield of -- these particular models, say it's 110 with some form of
5 recovery with catches, and it could be reduced on the order of 50 percent on total and be contrary to what
6 you see here.

7 Now, one thing I will have to find out, and I know there is a paper in the back, is to give you an
8 evaluation of what happens if you change some of the assumptions in the production model, specifically,
9 assumptions that relate to where you estimating the status of the resource to be. At this point in time the
10 relative status, I should (inaudible) in terms of what sort of intrinsic rates of increase one might assume
11 about sharks.

12 One of the features of this particular fishery is that, as I pointed out, biomass of 20 some different
13 species, it is hard to evaluate in terms of single species sorts of concepts and these models are, in essence,
14 assigning an intrinsic rate of increase that represents a wide array of things, including expansion of the
15 fishery, different species mix in the fishery and some other features.

16 In any event, there have some evaluations that we also looked at in terms of intrinsic rates of
17 increase that we might expect for things large coastal sharks complexes, and this slide is, again, not in your
18 documents, but it is, in fact, in the a table form in one of the appendices of the 1996 reports. So, this is
19 just trying graphically to indicate the sorts of demographic considerations that would lead you to believe
20 about the intrinsic rates of increase possible for certain types of shark species in this complex, over the
21 range of different assumptions, and these are allowing random combinations of different parameters within
22 the different set of analyses that are done. And it kind of is a cumulative probability distribution sort of
23 grabbed with the table I had -- made me put the percentile of this simulation data set up, the X axis, with
24 the intrinsic rate on the R axis, but, anyway, if you look at the central tendency, which will be about the
25 50th percentile, these are the sorts of ranges that you are talking about, values on the order of about .07 to
26 values on the order of about .12, 12 percent per year, 7 percent per year.

27 Now, obviously, there was a miss match in terms of models that give you an assignment of

1 intrinsic rate of increase potential on the order of 20 percent per year, given these sorts of considerations.
2 That, in fact, may account for expansion features, may account for immigration, and immigration and
3 things of that nature, but there's a lot that we don't know yet. One of the things that we have
4 looked at in terms of expectations is that there were some management measures that we implemented in
5 1997, I think. This is one of the figures in your report. This is trying to depict, is given the various
6 models that we've applied, and that I pointed to earlier, and the uncertainty inherent in them, what sort of
7 recovery ratios -- now, remember this recovery ratio is estimated stock size in 1999 with respect to 1996,
8 might be expected for these different model combinations. And, in general, we have the -- let me read this.
9 On these blue lines, it's this one, the natural life information for 1994-1995, it says there's a very high
10 probability given that model that things are going to continue to decline given that management measures
11 that would effectively reduce fishing mortality rate in half.

12 For the production model, which was '81 to '95, I think that's this line, no. Yes, that's this line.
13 It says that over that time period, you are expecting about a 25 percent increase if the management measures
14 put in place effectively reduced the fishing mortality rate from what they were in 1995 to about half of that
15 level.

16 In the likelihood method for the data '86 through '95, it says that you could expect on an average
17 of about 60 percent increase over that time period, so that's the model that gives us the strongest signal
18 with respect to increase in stock size.

19 These two lower lines give you an idea what the expected catches would be under these
20 management measures if they effectively reduced catch or reduced fishing mortality by half and the catch
21 levels around the order of -- combined catch levels on the order of 180,000 fish, which is quite a bit below
22 what the combined total has been over the past few years.

23 The other question that we asked is what are our chances of seeing in our catch rate information
24 these population responses over the period of time we are talking about? It's figure two in your '97 report,
25 and this relates to how powerful statistical tests would be for detecting this sort of trend, and what I want to
26 point to is these models that are being applied and why annual expected rates of change for the most
27 pessimistic case of minus 6 1/2 percent per year, for the production model sorts of cases on the order of 7

1 percent per year positive increase, and for the most optimistic formulation about 15 percent per year
2 positive increase. These rates are, in fact, within the ranges of sort of demographic arguments that can be
3 posed, but, obviously, built into these rates are fishing mortalities. I mean, it's not populations intrinsic
4 rate in and of itself, but it's the rate that would expect conditioned on the fishing mortalities that were
5 estimated.

6 But the take-home message from this is that this is that in most of the cases, except this last one,
7 we have a fairly high probability of being able -- a very high power for detecting a change given that it is
8 occurring at that rate over this time period. The other model -- the message is if things are functioning as
9 we see -- as we would be modeling under this last case, which would be the large coastal likelihood method
10 fit to the '81 through -- or '86 through '95 data, then, the measures are, in fact, doing what they were
11 intended to do, then, over a three or four-year period we would probably expect to see a change evident in
12 the test rate information that we have. If, on the other hand, the other models are more appropriate, either a
13 one that indicates a positive tendency, this one here, production model, fits, or one that shows the negative
14 tendency, which is the (inaudible) method fits the '94-'95 data, we are not likely to be able to detect that in
15 the catch rate information that we have over the next three or four years. That's the message there.

16 That, I think, is all that I have got to talk about on this issue, and I hope I gave you what you
17 needed.

18 MR. DUNNIGAN: Let's take about five minutes for questions for Jerry Nelson.

19 MALE PARTICIPANT: Jerry?

20 MR. NELSON: Yeah.

21 MALE PARTICIPANT: Where are the recreational discards and discard mortalities?

22 MR. NELSON: The estimates of the recreational harvest are --

23 MALE PARTICIPANT: No, no. The discards and discard mortalities.

24 MR. NELSON: The estimates of recreational catch are what's called A plus B1 catch out of
25 MRFSS, which includes fish that are thrown back to the sea dead or fish that are stored in the trunk and
26 someone doesn't see, so it includes throw backs by the recreational fishery.

27 MALE PARTICIPANT: In the column?

1 MR. NELSON: In the column. It's not broken out separately. It's combined. I didn't have it
2 broken out.

3 MR. DUNNIGAN: Bob Zales.

4 MR. ZALES: Bob Zales. Are sharks considered by the MRFS a rare event species or not?

5 MR. NELSON: I don't think MRFSS has yet told us what a rare event species is.

6 MR. ZALES: Well, the reason why I ask that is because a rare event species your competence
7 levels are much less on rare event species than they are on species that they encounter on the regular basis.

8 MR. NELSON: Perhaps. Let me give you an example. For instance, sailfish along the Florida
9 east coast are, I think, believed by many to be in the context of MRFSS, are rare events.

10 MR. ZALES: Good.

11 MR. NELSON: However, the precision of the estimates about sailfish catches is really
12 reasonable. It's on the order of 20 percent or less for many years in the recent time period, and so it's my
13 view that the rareness doesn't necessarily relate to the precision to the estimates that come out of MRFSS,
14 so if I could answer your question that way. I don't know if we are less precise in our estimates under an
15 assumption that things are relatively rare in MRFSS. They may be less accurate, but we don't have a way
16 of determining accuracy, given the MRFSS information set. Good enough.

17 MR. ZALES: Good as it gets.

18 MR. DUNNIGAN: Other questions for Jerry? Okay, let's move ahead. The next presentation is
19 by Lou Fits (phonetic).

20 DR. PORCH: Well, my charge is to give you a whirlwind tour of the bluefin stock assessment,
21 but I don't even think -- I will start out by showing you the results of the SERS assessments. This -- the
22 dotted blue line is the SERS results in 1994 VPA adapt assessment. The solid blue -- sorry, red line is the
23 VPA 1996 assessment. Let me just move it up, and the green line is an A structure model of the 1996
24 SERS assessment. And, as you can see, they both say about the same story. Finally, this is the spawning
25 stock and divided by the spawning stock biomass of 1975, which was considered a classic (inaudible).

26 As you can see, the trend is basically a pretty precipitous decline from 1975 through to '90 or so
27 and then it starts to level off to the level of 70 percentile or so.

1 Also look at estimates of MSY from the VPA structure model, and these are the estimates of what
2 MSY would have been through the years from 1950 to 1995, and the reason why it is different is because
3 during these different time periods so much activity has changed, since there are a lot more small fish stock
4 in the '60s and '70s from the Persing (phonetic) fishery.

5 Spine stock biomass at MSY is a little less sensitive to these selectivity changes, and it seems to
6 have been estimated to be fairly constant. That's it -- so it has been relatively constant VPA structure
7 throughout the models, so around close to 50,000 metric tons.

8 Then, the SER has conducted some projections. These are media trends, which assume that the
9 recruitment function is -- the two-line model which I will talk about a little later, and also that the
10 selectivities in the future would be about the same as they were in the 1991-1993 geometric gain. And
11 that's basically staying status quo for activities, and, as you can see, these are all catch rates here -- sorry,
12 catch quotas, these different lines. The top line, the green line, is 0 metric tons, all the way down to
13 increase the metric tonnage until you get to the bottom triangle, which is 3,000 metric tons. And it seems
14 that the largest catch quota that's sustainable is about 2,500 metric tons. There has been a slight increase in
15 trend from the present two ton.

16 So to summarize the SERS results, the current catch of about 2,400 metric tons seems to be
17 sustainable. In fact, 2,500 metric tons believed to be sustainable based on this particular set of projections.
18 However, this substantially lower than the maximum sustainable yield, which is believed to be between
19 5,000 and 6,000 metric tons, and to reiterate the number in 1995 of H plus, H older -- H8 and older fish is
20 about 17 percent of what it was in 1975.

21 Subsequent to the SERS assessment, we were asked to run some additional projections. We are
22 asked here to -- we were asked to look at the constant fishing mortality rate fixed at F0.1, at FO.1 and also
23 the maximum yield per a group fishing mortality rate, and also a different improvement relationship which
24 is to represent whole curve, and then we were asked to look at the changes in selectivity and also mixing.

25 Before I project those results, I want to make a couple of points clear. The trends that I will show
26 you here illustrated by the red line are actually the medians of the projections. Because there is an
27 uncertainty in the recruitment which we tried to model, the actual range of projections varies according to

1 these blue lines. These are 80 percent (inaudible). So the way to interpret the trends I am going to show
2 you is there is a 50 percent chance that the projection would be above this red line somewhere in this range
3 and 50 percent chance that it would go below the line.

4 The first set of projections, alternative projections, that we were ask to do were with the so-called
5 F max, that's the F maximum yield per recruit, and FO.1, which is a 3 point benchmark that's often in the
6 vicinity of the fishing mortality rate at MSY. The red curve is the curve of yield per recruit, and you get
7 the typical increasing alternative which ebbs to a point, and then it declines. And the maximum yield per
8 recruit occurs at a fishing mortality rate of around -- a little over .2, and the FO.1 benchmark is a little over
9 .1. And you can see also -- let me digress a little policy for MSY on occasion, but it is not a very good
10 policy because it's based on yield per recruit. But it doesn't take into consideration the stock improvement
11 relationship, so here this blue line -- this last blue line gives the spawning stock biomass per recruit. As
12 you can see, it's a lot lower with a fishing mortality policy set at F as it is at FO.1. And that's why -- that
13 MSY is probably closer to down here, a little bit lower at FO.1.

14 Looking at those projections where we fixed the fishing mortality rate projections rather than
15 fixing catch quotas, we see that the green line is a projection for an FO.1 and the red line is for at max.
16 fishing mortality rate and maximum yield per recruit. And the top graph is spawning stock biomass
17 relative to 1975, and as you can see, the FO.1, as you would expect, rises faster and up to a higher level
18 than biomass, but it still doesn't get here at the top horizontal line at 1 which is the MSY process. So the
19 spawning stock biomass does not get up that high.

20 The reason for this hole -- I have a two-line model which I am going to show you in a little bit
21 because it gets the recruitment to a level that is not easy to obtain in the high spawning stock biomass. So
22 here are the stock recruitment curves, because the next thing we were asked to evaluate was what would
23 happen if we used a different stock recruitment curve than the SERS used, mainly the Beverton and Holt
24 curve. The blue line is the two-line model. The two-line model was created because of all this uncertainty
25 in the recruitment. This point right here is the spawning stock biomass that's the geometric mean from
26 1985 to 1991. To a recruitment level indicated by the horizontal part of the slide is the geometric mean
27 from 1981 to '92. In this slope, it's just a linear interpolation from that spawning stock biomass down to

1 the origin because at some point, if there's no population, we know there's going to be no recruits.

2 So when you would -- the way this curve works is if the spawning stock biomass projection is
3 less than this threshold, that's the 1985 to '92 geometric mean, the you would interpolate what the recruits
4 would be from that point to zero, proportionally to the spawning stock biomass. The Beverton-Holt curve
5 is just fitted to the whole body of points. All these green points are the recruits and spawning stock
6 biomass from the VPA. So what we did was let projections using the red curve rather than the two-line
7 model, blue curve, at the SERS.

8 MALE PARTICIPANT: What's the out buyer up there?

9 DR. PORCH: I forget exactly which year that is.

10 MALE PARTICIPANT: 1973 year class.

11 DR. PORCH: Is it? This, by the way may be pulling that to represent the whole curve which is
12 one reason people opt for the two line. Okay. That's one line that's stacked if you are allowing the water
13 recruits at higher stock biomass, you are going to get a little bit more realistic curve, and what we see here
14 is early on in the series the Beverton-Holt curve, which is the blue line, has slightly more pessimistic
15 projectories, but as time goes on and the stock biomass increases, then, you will expect more recruits to
16 come in because the (inaudible) relationship will house more recruits than the two line, so it increases
17 much faster closer to this or beyond the replacement of the spawning stock biomass as well.

18 Another one that we were asked to do was to look at what would happen with various selectivity
19 model calculations. This particular example is if we assume that there are regulations in place that do not
20 allow any small fish under age 7 to be captured, and these projectories are slightly more optimistic than, of
21 course, these that allow the small fish to be captured at current selectivities.

22 Another run that we did was to say okay, what happens if you have no -- are not allowed to catch
23 large fish, but we are allowed to catch the small fish. But you are maintaining these same particular quotas,
24 and these, of course, are much less optimistic. The reason being that small fish weigh less, and if you
25 want to meet your quota, you have got to catch a lot more small fish. That is what this particular quota is
26 saying.

27 And, finally, we were asked to look at the effects of mixing. Now, there are two models that we

1 looked at. One of them is the so-called diffusion model, which is the diffusion in the stream. And the
2 diffusion model assumes that when a fish moves to the other side of the ocean, say a western fish moves to
3 the east, the probability that it comes back is exactly the same as fish that's already on the east. So their
4 movements are determined by the place where they happen to be located at.

5 In this model, we looked at a rate where 2 percent of the fish in the west move east and 1 percent
6 of the fish in the east move west. That means that a fish in the west has a 2 percent chance of going east,
7 but once it's over there, it now has a 1 percent chance, given that it survives, for coming back to the west.

8 Now, I want to show -- to emphasize two points because I don't think they were absolutely clear
9 and sharp in some of the discussions. First of all, you have different historical trends predicted with these
10 particular mixing rates. The green is when you assume there is no mixing of eastern to western stocks, and
11 red is when you assume these particular mixing rates. So you get somewhat different population trends,
12 particularly in the east where the population gets down substantially. And what ends up happening in
13 projections of the east is that what was believed to be a sustainable quota of 25,000 metric tons no longer
14 becomes sustainable because the population estimate in most recent years is lower under the mixing model.

15 Another key point to notice is the difference in the fitted two-line model in stock improvement
16 relationship. The no mixing model, as you can see, the estimated number of recruits is much, much higher
17 than if you use the same criteria to establish the two-line model with the diffusion approach to the -- VPA
18 estimates from the diffusion model. And that's going to be absolutely critical in how we interpret the
19 projections from the mixing. They are much more pessimistic.

20 MALE PARTICIPANT: Can you explain that again? What is the diffusion model? You know, I
21 --

22 DR. PORCH: There are several ways that we can develop a stock assessment based on the models
23 that we assume. You can assume either the fish in the east and west don't intermix and just use catch data
24 from the east and the catch data from the west separately or you can assume that they do intermix in some
25 way. And we know that there is some degree of intermixing.

26 The diffusion model is just one particular way of saying that the mixing happens. So mixing in
27 the diffusion model says that if a fish is say in the west, then, this fish has a 2 percent chance each year of

1 going over to the east. Once it's in the east, though, it doesn't necessarily come right back. It has a 1
2 percent chance of coming back, and, as I will show you, there's an alternative model which is a little bit
3 different, and I'll explain that in a second. But, basically, it assumes that the fish just have overlapping
4 ranges, and depending on which model you use, your interpretation of the projections are different.

5 MALE PARTICIPANT: Can you put the last one back on since you've explained it?

6 DR. PORCH: Sure.

7 MALE PARTICIPANT: No. The one with the diffusion.

8 DR. PORCH: Okay, that's -- there are two graphs. One of them shows the estimates of the
9 historical trends, which are somewhat different. The no mixing is the green line, and the red line is the so-
10 called diffusion mixing model. And they are somewhat different. The main fundamental difference is in the
11 east where you see that in the east the stock (inaudible) in the most recent years is spawning stock biomass
12 is much lower than when you have a mixing involved.

13 MALE PARTICIPANT: Then, in the diffusion model you have 1 percent of the eastern stock
14 biomass going west each year?

15 DR. PORCH: Correct.

16 MALE PARTICIPANT: And some portion of that 1 percent are prior western migrants?

17 DR. PORCH: Right.

18 MALE PARTICIPANT: Mr. (inaudible), in essence, the formulation that is in our series
19 (inaudible).

20 DR. PORCH: Yes, sir. Now, to just reiterate again, what we see largely because that two-line
21 model -- which has so much lower recruitment that the projectories -- the projections are much more
22 pessimistic, so incorporating mixing doesn't necessarily mean that we are going to have more optimistic
23 projections of spawning stock biomass.

24 Now, I am going to go into this so-called overlap model. These exact same rates, but this is a
25 different way of parameterizing mixing. In this model, a fish that moves say from the west to the east has
26 a guaranteed chance of coming back. It's always considered one part of the stock.

27 MALE PARTICIPANT: Considering the fishing mortality rate, it's chances of coming back are

1 probably going to be low.

2 DR. PORCH: No, no, no. This is given survival. I am talking about mixing. Given that it
3 survives, it will always come back. It's another -- both of them are extreme ways of parameterizing it.

4 MALE PARTICIPANT: Not given though.

5 DR. PORCH: Pardon?

6 MALE PARTICIPANT: Okay, I'm listening.

7 DR. PORCH: Let me see if I can make this clear. If a fish in the west moves to the east, given
8 that it survives, it will come back to the west according to this model, this overlap one. We can think of it
9 as an overlap. When we do this stock assessment, fishing mortality is included in that, and they may die
10 and be caught in the east. That's all in the mixing them up, but just focusing on the aspect of mixing, the
11 movement of the fish, the fish that go over to the east remain part of the western stock. They are
12 considered part of the western stock in the counting of them all. Does that make sense?

13 MALE PARTICIPANT: Okay.

14 DR. PORCH: In this particular formulation, the projection results are quite similar to the no
15 mixing account. They are a little more pessimistic, but not much. The only difference is that now 2,500
16 metric tons is no longer sustainable and 2,000 tons is, so the dividing line is between those two.

17 MALE PARTICIPANT: Can you simplify that? Can you explain what the implications of that -
18 - when you incorporate mixing a 2,500 yield in the west is no longer sustainable. So what is that telling
19 us is happening? The 2 percent going west to east and the 1 percent coming east to west becomes a net
20 drain on the stock assessment, net loss?

21 DR. PORCH: It's actually more complicated than that because when you go back to this figure,
22 remember, now, these are only somewhat more pessimistic with the overlap. They are not that much
23 different except right at this dividing line. Part of the reason you can see right here. With the overlap
24 model, the historical transit estimated to be about the same, so you can hardly distinguish it on here. If
25 you look at this graph here, which is the critical one, because of the way that we parameterize the two-line
26 model, the criteria that was selected by the SERS, the no mixing is slightly more optimistic in terms of
27 what the number of recruits can be. You can get a higher recruitment level per a given spawning stock

1 biomass, and that is why ultimately in the long-term projections you get a little bit more optimistic trends
2 with the no mixing model than you do with this overlap model.

3 MALE PARTICIPANT: Didn't work.

4 DR. PORCH: Pardon?

5 MALE PARTICIPANT: It didn't work. You had better move on.

6 DR. PORCH: That's it. That's what I have. If you think about it in terms the projections are
7 largely dependent on what you assume for stock recruitment, which is a sticky issue because we don't have
8 very good -- a very well defined stock recruitment curve. So here if there are recruits -- a higher level of
9 recruits are allowed, you would expect that they would be generally a little bit more optimistic. You have
10 the complication of the fish -- of the mixing of this, but it doesn't make up for the difference in estimated
11 stock recruitment. That's more important. If we had mixing rates of 20 or 30 percent, that would have a
12 bigger effect, so there is counter-balancing effect. It turns out that the rate of this counter balance is
13 working that with the overlap model you get almost the same with slightly more pessimistic results for the
14 projections.

15 MALE PARTICIPANT: Did you use different rates besides the 2 percent, 1 percent?

16 DR. PORCH: We have some that we use 1 percent and 2 percent so there's a split often for both
17 the overlap and the diffusion models which I can share with -- one problem with it is the data in the VPAs
18 conflict seriously when you assume those. In other words, it doesn't reflect those particular mixing rates.
19 The indexes don't fit very well. In fact, they fit terrible, particularly with the diffusion model, and then you
20 get all kinds of instabilities in the solution where it wants to say there's one fish that was 8 in 1980 or
21 something. So, basically, that's a numerical problem of what happens when the (inaudible) like that. You
22 are trying to assume something that the data doesn't agree with.

23 MALE PARTICIPANT: Then, why not do some simulations with much larger mixing rates?

24 Ten

25 percent --

26 (End Tape 5, Side A.)

27 DR. PORCH: They agree less and less with the data, and you get total ridiculous solutions. You

1 can't even ponder their solutions sometimes. They will predict negative stock sizes, and that's basically
2 because the model says these (inaudible) are irreconcilable with the data that we have.

3 MALE PARTICIPANT: The data is based on tag them results?

4 DR. PORCH: In the VPA, the catch data, we use indexes of abundance --

5 MALE PARTICIPANT: I am talking about mix, tag and --

6 DR. PORCH: Well, both, because the VPA we are using -- the VPA with mixing so it's still a
7 virtual population analysis, but the -- my model sees mixing, so when you estimate the mixing rates, we
8 can use the tagging data. These particular projections, since we are just looking at projections with this
9 fixed mixing rates or levels somewhere up around the levels that were around the DMC. That's for
10 presentation here. You could very quickly produce some matrix of, you know, 100 by 100 different mixing
11 rates that would be very difficult to present and digest. But, basically, when you get the higher mixing
12 rates, you get nonsense for results from the VPA. It doesn't reconcile with the data, and so, therefore, we
13 get nonsense for directions.

14 MR. DUNNIGAN: We need to keep moving, Ed. We have had some real back and forth in here
15 during the middle of the presentation, and we are not getting names for the record as to who's going. I
16 think the best to let him finish through the presentation, and then we'll take a couple more of questions.

17 DR. PORCH: Well, I'm finished through the presentation.

18 MR. DUNNIGAN: Well, all right. David Gordon.

19 MR. GORDON: Yes, David Gordon. What is the scientific basis for using 1 percent in one area
20 and 2 percent in the other area? I'm not arguing about the percentage, but why are you using a different rate
21 on one side of the Atlantic versus the other?

22 DR. PORCH: Two reasons. One the tiding data seems indicate that. However, there are
23 misgivings with the tiding data (inaudible) recording rates are so there are ways to get around it. We use a
24 ratio of the tiding data that averages out accordingly, but then you are subject to some other assumptions
25 such as what's the original (inaudible) to tag it. And it's a difference in sides. There is some indication
26 from that, although the tagging data is not that strong.

27 The table that shows the number of tagging (inaudible). The other point is that when you run the

1 VPA, the mixing rates which are larger in the east to the west don't jive well within the season abundance,
2 so you get a very poor fit on VPA. The VPA tends to favor, in terms of the estimation process, mixing
3 rates that are low and in terms of a slightly larger rate going west to east than east to west.

4 MR. GORDON: David Gordon and the follow-up. In terms of what happens to the model, if you
5 use the same percentages on both sides, either 1 percent or 2 percent? How does it affect the projection?

6 DR. PORCH: Well, this is just to illustrate that you have a low number of returns. These are
7 releases in the west. This is the number of recaptures. You have 4,275 total recaptures in the west, and
8 only 67 of them are caught as of 1994. And that's, I think, from 1950. So, basically, we don't have a lot
9 of tagging data basis (inaudible). They are not well determined by (inaudible). Then, on top of the idea that
10 this model may not be especially appropriate, and if SERS scientists think that the overlap problem is
11 probably realistic than a diffusion, the truth is we have been looking at much more complicated ways than
12 that. And I have made a presentation having to do with that in Charlotte which basically says that if the
13 mixing rate isn't too bad, even if it is more complicated, the no mixing and mixing models should give
14 you, in general, the right answer, if you know what I'm saying. The other question that you asked is what
15 happens when you assume different mixing rates, and I will show you one where the west spawning stock
16 biomass. Here's an example of the types of types of difference in trends that you can get given different
17 levels of mixing. The green line there is when the east is bigger than the west at 5 percent and the west is
18 2 percent. West to east and east to west is 5 percent, and you can see there it's much more optimistic,
19 although it's giving a horrible fit to the VPA, but you can still get an answer. It may not be a good
20 answer, but you can get one because the VPA doesn't fit very well in that case. The other case you have
21 illustrated is the one in purple which is the one which west to east is 10 percent, east to west is 1 percent.
22 That, again, doesn't fit very well, but it tells you things are declining even faster. So depending on the rate
23 that you assume east and west, you can get all kinds of (inaudible) (simultaneous talking). Our task is to
24 try and find one that is reconciled with the data, that's as well as possible. But it certainly isn't an unfair
25 (inaudible).

26 MR. FITZPATRICK: Robert Fitzpatrick. Way back at the beginning, the second or third
27 overhead it showed --

1 DR. PORCH: What was it about?

2 MR. FITZPATRICK: It showed -- well, it showed the general trend to go to hell in a hand
3 basket, and with projections of the biomass through the '80s, I think, in gray in the background.

4 DR. PORCH: Projection?

5 MR. FITZPATRICK: No. No. The estimates. Yeah, is that it.

6 DR. PORCH: The gray are superimposed trends because (inaudible).

7 MR. FITZPATRICK: Okay. What I don't quite get is -- what I don't quite understand is the
8 performance of this fishery, when was the last time you were on a boat in New England.

9 DR. PORCH: The last time in New England? I haven't been in New England.

10 MR. FITZPATRICK: You haven't been there?

11 DR. PORCH: I've been in Canada.

12 MR. FITZPATRICK: Well, do you know how many days we fished last season to catch our
13 quota?

14 DR. PORCH: I don't think so.

15 MR. FITZPATRICK: Well, we don't fish many days any more because there's so many fish. We
16 catch them in a hurry. We fished three days in the month of August, six or seven days in the month of
17 September, and four days in the month of October to catch somewhere around 61 or 62 percent of the quota.
18 In the '80s we couldn't catch the quota. We fished 150 days and couldn't catch it. Suddenly, we catch it in a
19 heartbeat. We have got fishermen who are recreational fishermen who have 25 years in this who do not
20 have a financial ax to grind saying, and they are willing to come in and put their hand up. They are saying
21 that they are seeing more fish now than they have ever seen in their 20 or 25 years of observation. Now, I
22 know that this probably doesn't fit the VPA either like large mixing rates do. Could it be that maybe there
23 are large mixing rates that would really throw the whole thing into a mess, but it doesn't fit the VPA so we
24 don't want to look at that? I mean, we just got bio pop-up tag returns, two of which came up on the wrong
25 side of the fence. To me, that says 40 percent, not 10 or 2 or 1. Now, I know it's a real small --

26 MALE PARTICIPANT: Real small.

27 MR. FITZPATRICK: Well, it's real small, but it's real. They actually came up over there. It's

1 not in the VPA. Can you try to explain to me why the performance of the fishery is out of control, yet we
2 are crashing and burning on the ground? Three thousand metric tons -- when it says we go to 3,000 metric
3 tons, boom, zero. In a matter of a few short years, there's none left, basically. We have collapsed the
4 fishery, yet the Japanese are catching hundreds and hundreds and hundreds of metric tons just on the other
5 side of the line. Are those our fish? Gee, what if they are? If those are our fish, you guys are so wrong.
6 You don't want them to be our fish, I assume, because if they are our fish, your VPA is out the window.

7 DR. PORCH: It's amusing when you say I don't want you to catch the fish. That's not --

8 MR. FITZPATRICK: I said --

9 DR. PORCH: I don't sit there and think about what I can do to change the results. I get the data
10 which is gathered from various sources, and my job is to interpret what I can through that data. Now, as
11 new data becomes available our job is also to incorporate that data. Pop up tag has just become available,
12 and we are also talking about very few. But there is no question that as we are able to put more data or
13 gather more data (inaudible) prioritize, but we haven't done to much of it. It's so expensive, but we will get
14 a better understanding of the dynamics of the fishery. I'm not saying -- in fact, one of the presentations that
15 I did in Charlotte was talking about, I don't understand the mixing rate very well. These are alternatives
16 that we looked at to try to get a handle on it.

17 Now, as far as what people are catching now, I also talked to fishermen when I was up in Canada.
18 They are catching -- they getting cited now because they get seven or eight fish in a trap, and fishermen that
19 were fishing there in the '50s say that they got 100, 200 to the trap. Sometimes one guy claimed 500, so
20 you get conflicting stories depending on who's talking and when.

21 MALE PARTICIPANT: With respect to that issue, when you are talking about the model not
22 reflecting the information, part of the information that you are talking about is what went on in 1997. We
23 haven't incorporated that information yet into any one (inaudible).

24 (Simultaneous talking.)

25 DR. PORCH: Let me talk about what went on in '96. It has to be incorporated into the analysis.
26 And what we have here is, in fact, one of the measures of large fish (inaudible). It reflects generally the
27 catch rates that go on in the large fishery of (inaudible), and that's this time series right here. This is what

1 we call the large fish index out of the large galactic survey. So this is as of the last analysis we did, which
2 was back here with information through 1996. This is the time series that you end up with the blue dots.

3 And, yes, what it is saying is that in '96 these catch rates are above what we were seeing in years -
4 - in the recent past and probably approaching what we were seeing in 1982. Now, what we relate that to in
5 terms of this analysis is, in effect, the 1989 year quest moving into what we are calling the A+ biomass,
6 which is what this green line talks about.

7 MALE PARTICIPANT: How big are those fish last summer?

8 DR. PORCH: They would be what you call large, mediums or small, giants, I suppose. They are
9 just coming into eight-year-olds or nine-year-old.

10 MALE PARTICIPANT: 300 round?

11 DR. PORCH: I don't know what they are in terms of round weights. I know --

12 MALE PARTICIPANT: Well, how about dress weights?

13 MALE PARTICIPANT: Well, round weights, 300 is all right, you know.

14 MALE PARTICIPANT: Well, either one.

15 DR. PORCH: Our average weight went up to 420.

16 MALE PARTICIPANT: Just tell me how big they are because I see 20 percent of the fish in the
17 fishery my business handles and I see a lot of year classes. I didn't see a predominance of this '89 year
18 classes. You guys have been talking about it for a couple of years now.

19 DR. PORCH: That's what the signals are showing in the catch rates, and that's how the models
20 were interpreted. What you are saying is that it's stretched out further in the age distribution. Maybe that's
21 the case, and maybe we will pick it up with the catch rate that we have now. I know that, for instance, the
22 information that was presented to us by East Coast Tuna Association, USCRS class, related to captains'
23 log books. Captains' logbooks made a suggestion that most of the increase in catch related to these large,
24 medium fish, not to films that were super large. But these things that could be related to 1989 year class.
25 That's the information that we have. That was for 1996 catch. In '97, of course, they are going to be
26 better. In '98 they are going to even be bigger than that.

27 MALE PARTICIPANT: So there seems to be a huge amount of uncertainty in what we are

1 talking about? I guess it seems like you and I would get up and talk about the gospel in bluefin and stock
2 structure and the way it's going. And you are talking about putting hundreds of small businesses and
3 families and fishing communities out of business.

4 Dr. Porch: I'm not trying to put anyone out of business. I'm trying to classify the information
5 the best way I have in an objective way. I think that was the response that (inaudible), and, unfortunately,
6 that's not the sort of strategy, I guess, that a number of folks like to portray in terms of scientific
7 information that's passed on. But what we are trying to do is give you an honest appraisal of our best
8 estimate of the conditions and that's it. We have some idea in terms of our characterization of uncertainty
9 in results, and that was one of the first ones that Clay put up in terms of the air power around the
10 projections. That defines in our terms what the sorts of uncertainties are. Are they all the uncertainties?
11 Well, I can't say that. They are the uncertainties that we can characterize given the model structures that we
12 know how to apply to each case, and that's it.

13 MR. DUNNIGAN: The Bluefin breakout group is going to have an opportunity to go into this in
14 a lot more detail. I think if we are going to make it through the agenda, we are going to need to continue
15 on. One last question.

16 MALE PARTICIPANT: Yes, it is a question and a clarification.

17 FEMALE PARTICIPANT: Your name, please?

18 MR. RUAIS: Richard Ruais. I was wondering if you could put that -- the first overhead that you
19 put up showing the projections, the '96 SERS projections? I just want to get a clarification. Okay, and
20 the 2500 catch -- here doesn't show that by 2040 it's -- that you've got complete recovery, but it is showing
21 that at that level that's assuming -- at that projection, that's assuming that there is no improvement as the
22 biomass -- spawning stock biomass increases, but under that constant catch strategy you've got stability and
23 an increasing stock that, according to Dave, I guess, in 65 years would presumably achieve the complete
24 rebuilding target. Is that right?

25 DR. PORCH: Maybe.

26 MR. RUAIS: Maybe? According to the projections?

27 DR. PORCH: According to the projections, it doesn't (inaudible).

1 (Simultaneous conversation.)

2 DR. PORCH: Unless you use the arrow bars that I showed you, we can't project recruitment.

3 You mentioned the gospel and (inaudible) don't know what's going to happen in (inaudible). You could

4 update.

5 MR. RUAIS: Yeah, but that's true for all of them?

6 DR. PORCH: Right.

7 MR. RUAIS: But if we are going to use this as information to guide us as we move forward,

8 then, you have to assume that 2500 is producing an increasing stock biomass that assumes no mixing,

9 assumes no compliance in the eastern Atlantic, presumably, and that recruitment doesn't get any better as

10 the spawning stock biomass improves and increases, and, yet, in 65 years we are there.

11 DR. PORCH: That's what this projection would say on -- that's the median projection. It could

12 be quicker or it could be longer. And one would try to implement an approach that would allow the

13 biomass to -- allow the recruitment to increase with biomass. It could be even quicker or it may not be.

14 That would depend on the exact model that (inaudible).

15 MALE PARTICIPANT: If the recruitment was less and the biomass went up?

16 DR. PORCH: If the recruitment increases as biomass went up, all other things being equalled,

17 then, we would expect that projectory to go up. However, that depends on what the near term recruitment

18 predictions are as well, so if we took a Beverton-Holt product or stock recruitment model to the information

19 that we have right now and project that forward, under these sorts of conditions, 2,500 metric tons would

20 not be considered sustainable.

21 MR. DUNNIGAN: Okay. Thank you, Clay and Jerry. We've got to move ahead or you are never

22 going to get through your stuff. The next presentation is from Steve Gunn on swordfish.

23 DR. TURNER: Okay, a North Atlantic swordfish. This is the maximum (inaudible) catch since

24 the early '60s. You see all -- roughly 20,000 metric tons at about the peak taken out of here in the late

25 1980s. (Inaudible) this goes through '95. It was on the order of 15,000, 16,000 metric tons. In 1996 it

26 was about 14,000 metric tons.

27 The U.S. takes roughly a third out of market, perhaps, a little less than that. Spain takes the

1 lion's share, and, in addition, you have Canada, and especially Japan.

2 For the stock assessments, we have a variety of in-season abundance. From multiple nations,
3 U.S., Spain, Japan, we have an indexes for age 1. For age 2 and older, we also pick up Canada. So we
4 have age specific indexes, through age 4 and 5. Of particular interest, the age 5 index -- actually, age 5 plus
5 suggests some long-term declines.

6 In addition to that, we have biomass indexes that go back further and part of the age-specific
7 indexes were calculated from 1978 forward. The biomass index is used for a surplus production models.
8 We have taken those a dot further and tied them to the early 1960s. These indexes integrate -- this time
9 period integrates the information for multiple nations. I believe that this index -- this part of the index
10 comes from the Japanese data. The scale here -- the list scaled to its mean, and this component is scaled to
11 its mean, so the relative height of these two components are not meaningful. It is only the trend within a
12 component that is meaningful in this graph. The point is we have some historic time series that indicate
13 declines.

14 We've conducted a variety of types of assessments, some going back into the 1950s. These
15 (inaudible) time series are all different forms of production models. We have an age structure production
16 model. Our primary production model that we use is one developed by a man named Plater (phonetic),
17 referred to as the aspic model, and there's another similar production model that we use as well.

18 In addition, on this graph and the aspic model is showing you is this dark line with the blue spots.
19 So it is going -- it reaches the highest peaks, and then declines. In addition, we have some VPA analyses
20 shown on here as well, and the primary VPA analysis we refer to is this one that starts in '78 and ends --
21 and declines through 1995.

22 What we are looking at here is, basically, spawning biomass. This is SSB relative to SSB MSY,
23 or from the production models total biomass versus biomass at MSY. I would point out that the aspic
24 model and the VPA show very similar relative levels for 1995, at roughly half of the SSB and MSY AB at
25 MSY levels. So we have a variety of models suggesting similar trends. Our two primary models
26 are the VPA and the aspic production model. Projections are conducted -- we have several of these models
27 in ongoing -- this is the results from the aspic model. Here we have the time trend starting in '85 going up

1 to about 2010. The upper level is non-catchable haul. The aspic model is the non-equilibrium (phonetic)
2 production model suggests that under this scenario 10,000 metric tons is not sustainable. We the 6,000 to
3 8,000 metric tons suggesting the increases; 8,000 metric tons achieving biomass relative to biomass at or -
4 - biomass at MSY in about 2010. With (inaudible) updated, that's 8,000 metric tons. As I refer to that in
5 a minute, we will be talking about the VPA projections.

6 The other two projectories are related to fishing at the MSY levels. The two-step is a slightly
7 different variant on that, but suggesting the (inaudible) but at a slower rate.

8 Okay, once again, starting in 1985 these are our VPA results. We are looking at SSB relative to
9 SSB in 1978. On this round and round roughly 30 percent from the initial level. Now, we see fairly quick
10 recoveries in most of these scenarios. Under the 10,000 metric ton scenario, we see a long-term decline.
11 Under 8,000 metric ton scenario, we see a very rapid increase. The VPA has indicated a more rapid increase
12 than the production model. A lot of this, I believe, due to the stock recruitment relationship. We don't
13 have a very good look at that relationship until you see the (inaudible) model, and it's suggesting that once
14 we move the stock -- the spawning stock biomass up a little bit, recruitment will go to a very high level
15 quickly. And the stock will result very rapidly.

16 We conducted a few alternatives. Examinations of this type of projection going with the
17 selectivity here, I see half that's -- just writing that in shorthand, really it's selectivity on ages one to three
18 reduced by 30 percent. We are assuming that discarded animals -- about 70 percent of discarded animals die
19 so that a reduction of 30 percent would correspond to, basically, everything being released from ages 1 to 3,
20 and 70 percent of the released animals dying. Basically, we see that 10,000 metric tons under this scenario
21 is sustainable and does lead to the rebuilding of the other projections at lower quotas result in even more
22 rapid rebuilding.

23 If somehow fishing could completely exclude -- ages 1 to 3 there was no mortality. On ages 1 to
24 3 we would even see more rapid rebuilding. This red line model is status quo fishing mortality rate, and
25 this indicates that even under this scenario of killing no ages 1 to 3 the operation would not rebuild. The
26 fishing mortality rate stayed at current levels.

27 MR. WILMOT: And that's even with reducing mortality -- I'm sorry, David Wilmot. Reducing

1 mortality to zero of 1 to 3 fish -- 1 to 3 fish at status quo, we get no rebuilding?

2 DR. TURNER: Yes, if you continue to harvest the fashion the 4 and 5 pluses at current fishing
3 mortality levels.

4 Okay. The SERS has estimated a maximum sustainable yield of 30,000 metric tons. In 1995 the
5 yield was about 17,000 metric tons. It was about 14,000 metric tons in 1996. The replacement yield for
6 '96 was 11,000 metric tons, and that was exceeded by roughly 30 percent, so I would say it was 14,000
7 metric tons taken and this level was exceeded.

8 The biomass in 1996 was about 60 percent of the biomass that was produced as well. Thank you.

9 MS. PEEL: Steve, would you -- Ellen Peel. Steve, would you repeat that last point? What did
10 you say about 60 percent in '96?

11 DR. TURNER: The biomass in 1996 was at 58 percent. The biomass that would produce MSY.

12 MR. DUNNIGAN: Do we have some questions? Nelson and then Bob. Name?

13 MR. BEIDEMAN: Nelson Beideman, Bluewater. It's 1136 for replacement level, yet you are
14 saying that a 10,000 would continue down?

15 DR. TURNER: Yeah. Replacement level is that year's replacement level. The stock level that
16 year. Now, what it is suggesting is the 10,000 -- they are coming out of different models, okay. One is
17 coming out of the production. The replacement level, I believe, is coming out of the production model, and
18 the other -- the 10,000, but still what it is saying is the number of recruits coming long are going to build
19 up the population as maintain that level. I think if we calculated that replacement yield out into the future,
20 you would see them dropping under the projections.

21 MR. BEIDEMAN: We've got a couple of indicators (inaudible) that we are hoping are going to
22 show up into the science on this next assessment such as Canada's CPUE going up in '96 and '97, and the
23 United States CPUE going up because that's -- our fishermen are definitely seeing more and larger
24 swordfish. And we have got that straight from National Marine Fisheries Service on these quotas
25 (inaudible), but one of the things that we need, I think, it would benefit the whole group is to understand
26 some of these indicators that we could put together in the meantime while we are waiting on that stock
27 assessment. I work with this all the time, but I still don't have the information, especially from the

1 government, on what has happened to the average size. We know in the '70s when long line was getting
2 rolling, it was somewhere between 125 in some areas and 140 maximum, and it slipped on down in the late
3 '80s to a low, we were told, of 68 pounds. And, then, the last of what we have been told is that it's back
4 up to 90 pounds for 1995 and 1996, and what we are hearing from the fleet is that it's virtually 100 pounds.
5 And what we are hearing from the bean counters is that that's true. The fishermen are catching
6 more swordfish and larger swordfish, and meanwhile -- now, we may have something out there working.
7 Where Canada is having emergency closures of the harpoon and long line fisheries because they are catching
8 too many large fish that they are afraid to come to mercury standards, emergency closures, and the average
9 size is going up, not down, according to the government. And, you know, we are caught up in this witch
10 hunt, but you don't --

11 DR. TURNER: I hope we can get that data into the assessment next go round in 1998.

12 MR. BEIDEMAN: In the meantime we should have average size information available as an
13 indicator.

14 DR. SCOTT: Can I respond to that?

15 MR. DUNNIGAN: Jerry.

16 DR. SCOTT: I'm Jerry Scott. Nelson, I think that at least part of the average size signal that we
17 are seeing relates to the minimum size regulations that were put in place in 1995.

18 MR. BEIDEMAN: Right.

19 DR. SCOTT: And so as time has gone on, those regulations have been more and more reflective
20 (inaudible) (simultaneous conversation) fish, less than 25 kilograms that are, in fact, (inaudible), so basing
21 judgment on the average size (inaudible) could be an (inaudible) by the regulation (inaudible) --

22 MR. BEIDEMAN: I'm trying to get the catch, you know. You know, we are a firm, firm
23 believer that catch and mortalities has one heck of a lot more to do than landings does, and I wish that some
24 of the scientists at this table would mature to the point of insisting on that across all species. We have
25 given up on the environmental community maturing to that level.

MR. CLAVERIE: My name
26 is Claverie juvenile. Steve, I wanted to ask you about that graph, yeah.

27 DR. TURNER: I'll turn the lights off.

1 MR. CLAVERIE: Well, you don't need the lights off. F MSY rebuilds to biomass at MSY in
2 how many years?

3 DR. TURNER: Some time around here. We get this line out.

4 MR. CLAVERIE: Now, when Rebecca was explaining that yesterday, I thought she said -- no,
5 not Rebecca, Pamela. When Pamela was explaining it yesterday, I thought that she said her definition of
6 fishing mortality at MSY was that mortality rate that would bring the stock to the MSY level in 10 years.
7 So, are you using something different, and if so, why or am I misunderstanding what she said?

8 DR. TURNER: No, I think you misunderstood something. F and MSY, if the stock is not at
9 MSY, then you are going to have to fish below F and MSY to get it to come back because you are
10 constantly (inaudible) constant fraction.

11 MR. CLAVERIE: Well, I'm still not understanding.

12 DR. TURNER: Well, okay. We can bring Pamela back up here and get her to answer the
13 question. Basically, if the stock is really reduced, you cannot drop off that fraction or the stock will keep
14 doing the (inaudible) sustained. F MSY, the rate of dropping off the fish will keep you at that high
15 production level. If you are depressed and you go out there and fish (inaudible), you can fish a little more
16 heavily to get you down to that production level, but --

17 MR. CLAVERIE: Okay, I misunderstood some way or the other.

18 MR. DUNNIGAN: Peter Weiss, David Borden, and then we have got to move ahead.

19 MR. WEISS: Yeah, I just had a question, more for Nelson as just a point of fibrigation
20 (phonetic). These graphs show that if you don't catch 1 to 3s, you know, you can catch a lot more other
21 fish -- bigger fish and get your quota. Number -- my first question is what is the poundage of 1 to 3s? I
22 mean, what do they weigh?

23 DR. TURNER: I think a three-year-old -- the average weight of a three-year-old with minimum
24 yield is about 85 pounds, so the upper end of that range is going to be something like 90 pounds. So you
25 would be throwing away about 45 percent of -- in the U.S. 40 to 45 percent in the U.S. landings. You
26 would be throwing away 40 to 50 percent in the Spanish landings.

27 MR. WEISS: So the answer would be a little bit. I think --

1 MR. DUNNIGAN: Nelson Beideman.

2 MR. BEIDEMAN: Nelson Beideman, Bluewater.

3 MR. DUNNIGAN: Speak up.

4 MR. BEIDEMAN: A 2 1/2 year old is a mature male, 37 pound for 50 percent mature males, and

5 we have been heading in the right direction. We've reduced our immature catches by like 41 percent and our

6 juvenile, you know, undersized catches, by 31 percent. So we've been heading in the right direction.

7 MR. WEISS: No. I was wondering --

8 MR. BEIDEMAN: We need to have a target, a goal because we can't get to zero.

9 MR. WEISS: So you don't have a viable fishery without catching these small fish?

10 MR. BEIDEMAN: We would have some viable fishery, but only in areas that are now large

11 enough that could move, primarily outside the -- it would decimate the warmer areas.

12 MR. DUNNIGAN: Dave Borden.

13 MR. BORDEN: Steve -- Dave Borden. Steve, in terms of spawning stock biomass that produces

14 above average recruitment, do we know where that level is?

15 And while he is looking for that, would those of you who are not familiar with it or heard it, you

16 pretty much have a strong correlation between certain spawning at certain biomass levels and the level of

17 subsequent recruitment.

18 DR. TURNER: I said we don't have a good handle on the relationship between spawning stock

19 biomass and recruitment. We don't know. It's not much here. We are putting a straight line through here

20 and drawing it down. There's not much information here. We don't have a good handle.

21 MR. DUNNIGAN: On that, Nelson.

22 MR. BEIDEMAN: Steve, what were the years where we had such massive recruitment? I mean,

23 for quite a few years there was a big recruitment, and we have never seen it again.

24 DR. TURNER: I believe this is the early part of the time series '78 to the early '80s. I believe

25 this -- I don't know what all these points are. I think this is probably the mid to late '80s, early '80s. I

26 don't know. I would have to have a label on each of these points to really answer your question. I can also

27 take you aside, and we can look at it. The lower recruitment generally was the early part of the time series

1 starting in '78.

2 MR. DUNNIGAN: Okay. Thank you, Steve. Do we will go ahead and talk about billfish. By
3 the way, when you are talking around, you are going to break in on the person, make sure you say your
4 name, and everybody speak out. You are not bashful, shy, retiring people, so speak up so that you can be
5 heard by everybody in the room. Okay, Eric. Thank you.

6 DR. PRINCE: I have two species to deal with independently, so I have twice as many figures.
7 So I am going to go through twice as fast in the same amount of time. Most of you are familiar with
8 these. Actually, this may be a little more, actually. This is the landing, historical landings database for
9 1961. I have added the third and fourth category, China, Taipei, and Korea, just to illustrate to you a little
10 bit more of the other categories, and if you would add the dark blue to the China, Taipei, Korea database
11 together, that would represent the Asian offshore long line fleets, and that component very much captures,
12 given the three variables, between about 70 and 90 percent of the harvest. (Inaudible) U.S. landings
13 (inaudible), this is the recreational landings and the -- and you take this part of the (inaudible) faction
14 (inaudible). It is a very minor component of the fishery.

15 Again, if you took U.S. landings and took -- removed them from the database and ran the final
16 again, it would be probably no difference than it was originally.

17 I hope you can see that. This is the benchmark table and the summary tables. I think everybody's
18 familiar with it. The first point is the total Atlantic hypothesis is considered the most appropriate. This
19 was heavily debated at the last workshop in July, '96. I'm not going to re-discuss this very much here.
20 Just to point out that the MSY is about 2500 metric tons. The current (inaudible) yield is approximately
21 that amount. The replacement yield is calculated in the term year of 1996. It's 1920 metric tons, and the
22 relative biomass in '96 is about 424. And we're about -- fishing about three times the level to sustain the
23 relative biomass.

24 MALE PARTICIPANT: When you say we, you are talking about the world fishery in the
25 Atlantic Ocean?

26 DR. PRINCE: Yes. The fishery itself, the total Atlantic fishery. The upper figure here is the
27 relative biomass. In the lower is the relative fishery mortality is basically a mirror image, and, again, it is

1 based on two quarter levels. And the term year 1996 is right here. This is the green with the (inaudible).
2 Just everybody has seen that before, but I wanted to put it up again.

3 I think this is going to be familiar as well. I went through some projections at various catch
4 levels. After '96 starting with zero level catch, and how the population might respond very quickly,
5 obviously, and then 1,000 metric tons, 1,500, 1,700, and so on. And you can't see the bottom here, and
6 the replacement yield of 1,920 metric tons is right here. You can see the relative biomass flattens out. So
7 you get the harvest down to that level, obviously, levels of harvest greater than the replacement yield are
8 going to result in a continued climb in resources.

9 Now, this is really very much the same thing. I am going to concentrate, actually, on the bottom
10 figures when talking about this ten-year time frame. And this is just a different way of looking at it. This
11 is the relative biomass at the Y axis and the X axis and the projected yield, assuming you can maintain that
12 level for the ten-year duration, which is probably a big assumption.

13 But, in any case, 1,500 metric tons --

14 (End Tape 5, Side B.)

15 DR. PRINCE: -- so you've seen this at the last workshop meeting, some of you may not, just to
16 try to explain and to give you a feel for couple things. First, the MSY level, as indicated here in the red,
17 25 percent reduction for 1996 landings are indicated right here, replacement yield is in blue, as calculated for
18 the 1996 terminal year, and this is the -- this is when we conducted the assessment, so -- the operating
19 message is that 25 percent reduction for '96 landing is still well above the replacement. And that tells you
20 again that biomass is really to be heading -- to continue to head in the wrong direction. Now, that's the
21 total land hypothesis right there, and just for discussion purposes, I wanted to put up the North Atlantic to
22 make a point. And that's more optimistic, and as you can see in this case, again, that the stock structure
23 inclusions from the workshop were that the most appropriate (inaudible) of measurement was the total at
24 landing of this particular species. But you can see that these are being reversed, and the replacement yield is
25 now higher than the 1996 North Atlantic (inaudible) reduction level. And now you can start to expect, at
26 least in this scenario, some rebuilding of the population.

27 MR. WILMOT: Eric, excuse me.

1 DR. PRINCE: Yes.

2 MR. WILMOT: Could you refresh my memory on the percentage of the U.S. total North Atlantic
3 catch? What percentage is the U.S. in terms of mortality, North Atlantic only?

4 DR. PRINCE: It's small. It's slightly larger than when you dump it in with the total math. I
5 don't have it off the top of my head. I can certainly get it for you.

6 MR. WILMOT: I have the SERS. I just wanted --

7 DR. PRINCE: I guesstimated the first figure.

8 FEMALE PARTICIPANT: Five percent.

9 MR. WILMOT: Five?

10 DR. PRINCE: Something on that order.

11 MR. WILMOT: Okay.

12 MR. BEIDEMAN: I think it was 5 percent on '96 information, but when they get done, you
13 know, updating that (inaudible) would be left.

14 MR. DUNNIGAN: Name?

15 MR. BEIDEMAN: Nelson Beideman. I think it was 5 percent on the '96 information, but,
16 typically, they will have updates. And, then, it will come down less.

17 DR. PRINCE: The new species, White Marlin, again, they added that fourth category of catch to
18 give you the appreciation of Asian long line fleet. This is very similar to the Blue Marlin example.
19 Obviously, the landings are dominated by the Asian off shore long line fleet. This perhaps will bring
20 another question. By the way, as in Blue Marlin, the yellow noted category is made up of primarily of
21 artisan fisheries, the (inaudible) shore are long line fisheries, and those few recreational fisheries outside the
22 U.S., and there are some.

23 MR. BEIDEMAN: Eric?

24 DR. PRINCE: Yeah.

25 MR. BEIDEMAN: Nelson Beideman. Just to point on that on the Taipei, China, Taipei --

26 DR. PRINCE: Yeah.

27 MR. BEIDEMAN: ICCAT has cited China, Taipei as possibly those catches that are associated

1 with the swordfish fishery being out of compliance with ICCAT, so that could be a chunk to the target
2 right there.

3 DR. PRINCE: There -- that's why they put Korea in those categories. It's a very large in present
4 terms. The benchmark table, the white line, again, the total Atlantic hypothesis was the one that will
5 continue to be the most appropriate. (Inaudible) 1,900 metric tons. We are a little bit below that in the
6 1996 (inaudible) yield. The replacement yield is not quite 1,000 metric tons, 921, and the biomass is
7 calculated at and the relative (phonetic) biomass is at .23. The fish mortality is about twice would be
8 necessary to --

9 MALE PARTICIPANT: That should be 21.

10 DR. PRINCE: And the relative biomass is (inaudible). We have a very similar projectory as with
11 the Blue Marlin, .23 in the terminal year of 1996, and a mirror image of the fishing mortalities.

12 The projections for various (inaudible) levels. Starting with a yield of zero, obviously, the
13 population reacts. The population response is pushed further and further to the outside of the graph. As
14 you reach the replacement yield, it's a little fuzzy right here. The biomass -- relative biomass levels out at
15 this point, and then, of course, any progress over the replacement yield of 921 metric tons resulted in
16 continued progression of the biomass.

17 You see that's a different way of looking at it, featuring a ten-year duration here at the White
18 Marlin. Again, 921 is the replacement yield, and that's when the projectory drops below MSY and progress
19 levels maintained for this particular period out here are going to push that biomass in a negative direction.

20 With Blue Marlin, again, we wanted to take a look at this 25 percent reduction of 1996 landings
21 indicated in purple. The replacement yield for '96 indicated in blue would because the reduction of landings
22 is higher than the replacement yield, that you would have a continued depression of the biomass.
23 Obviously, 25 percent reduction is not going to get us where we want to go. This illustrates that.

24 Now, look, just as an example for -- with the North Atlantic hypothesis. This hypothesis, again,
25 is closer, but still the 25 percent reduction is just above the replacement yield will continue to have a
26 downward edge in the slope of the biomass just (inaudible).

27 MR. MOORE: Charlie Moore, South Carolina. How does it relate with mortality when you

1 reduce the 25 percent reduction in landings, how does that relate to mortality, (inaudible).

2 DR. PRINCE: I'm sorry, Charlie, I --

3 MR. MOORE: How does that relate when dealing with the total mortality results?

4 DR. PRINCE: (Inaudible) commercial discards at recreational landings. Now, your question was?

5 MR. MOORE: I'm dealing with commercial landings and reduction of 25 percent?

6 DR. PRINCE: That's, basically, part of the long line fleet. If they reduce their landings by 25
7 percent, that will assume the 25 percent out of the (inaudible) would be part parcel of that (inaudible),
8 because it begins to drop the mortality involved in that.

9 MALE PARTICIPANT: Coast relief survivability.

10 DR. PRINCE: The long line fleet -- well, that's one of our problems. It's an area of research we
11 need to target for both the (inaudible).

12 MR. GRAVES: John Graves. Eric, what he's asking is in your model up here did you assume
13 that a 25 percent reduction in landings would get all of those translated into survivals?

14 DR. PRINCE: Yes.

15 MR. GRAVES: That's the best case scenario.

16 DR. PRINCE: That's the best case scenario with relative --

17 MR. WILMOT: David Wilmot. And is that assumption valid, Eric, or would it be more accurate
18 to use the 50 percent number, that it is a 50 percent gain in mortality even though one is releasing 100
19 percent of 25 percent?

20 DR. PRINCE: I will only be able to address that in terms of what the (inaudible) ratios via our
21 observers on the lone line (inaudible) we were measuring that precisely and assuming that whatever swims,
22 swims away and continues to survive. It's an assumption there, and I'm looking at around 50 percent
23 (inaudible) approximately.

24 MR. WILMOT: Okay, thank you.

25 MR. ZALES: Eric, Bob Zales. That 25 percent reduction of landings, does that include the entire
26 fleet Spanish, Korean, everybody?

27 DR. PRINCE: That assumes full compliance. Of course, if we don't get full compliance to the --

1 if it is a mandated recommendation (inaudible) Commission (inaudible).

2 That's all I have. Any questions?

3 MR. DUNNIGAN: Other questions for Eric?

4 MALE PARTICIPANT: Put up the first chart you put up again. I just have a question, the very
5 first draft.

6 DR. PRINCE: This is the number of landings --

7 MALE PARTICIPANT: Do you have any idea of the catch?

8 DR. PRINCE: That's more difficult. Most of the other ICCAT reporting countries -- this -- they
9 don't report on this. Yes, we do have an idea, but these are not catch tables. ICCAT doesn't maintain catch
10 tables. It just maintains landings tables.

11 MALE PARTICIPANT: But every other nation land what they catch.

12 DR. PRINCE: That's not true. That's not true.

13 MALE PARTICIPANT: Who doesn't?

14 DR. PRINCE: Spain, has a substantial (inaudible) catch and it's never reported any of it.

15 MALE PARTICIPANT: 100 metric tons is all they report.

16 DR. PRINCE: It's not just Spain. It's other countries.

17 MR. MOORE: Charlie Moore, South Carolina. It would be interesting to see if there would be
18 estimate on the graphs that would show that that dealt with mortality and not landings. In other words, I
19 think that's getting the horse before the cart. You could do it for the United States. I think our estimates
20 (inaudible) as far as the estimated catch. (Inaudible).

21 DR. PRINCE: Yes, I have.

22 MR. WILMOT: Do we have the recreational estimate of mortalities? I heard it was between 13
23 and 40 percent or something, Randy Edwards' study or something.

24 DR. PRINCE: No, we don't have that. I can say that. I say we know where the catch is, we
25 know how many are released, we don't know how many of those released survive.

26 MR. ZALES: Bob Zales. One quick question. The 25 percent reductions of landings, is that the
27 base year for 1996?

1 DR. PRINCE: Yes.

2 MR. ZALES: And for the United States the landings information from 1996 is primarily
3 retirement costs to the fishery?

4 DR. PRINCE: Well, and the discards (inaudible) those weren't computed in the reductions. The
5 reduction was 25 percent (inaudible).

6 MR. WILMOT: And the recreational post release mortality data.

7 DR. PRINCE: No. That's a factor that we haven't measured yet. (Inaudible) I don't have that
8 (inaudible).

9 MR. DUNNIGAN: Other questions? Mr. Peyton (phonetic).

10 MR. PEYTON: I have had a little trouble understanding it. I have seen it in the other
11 presentations. If we stop such a decline so dramatically or at exceptional levels, why are we seeing rather
12 stable catches, and in this case, increase in catches? It's a little hard to understand how --

13 DR. PRINCE: It's a question for Blue Marlin. The decline -- White Marlin on the graph
14 continues to go down, but the blues, you will see here that the (inaudible) we have actually had four years
15 of -- three or four years where the Japanese long line catch is approximately 40 percent of the total Atlantic
16 catch. And these are direct correlation to the size of the Japanese long line fleet. That doesn't mean catch
17 per unit. Efforts is going up. That would be -- I would -- I don't believe that's the case. The (phonetic)
18 continue to go down, but the reported landings are increasing, and that's proportional to the upper level of
19 Japanese long line.

20 MR. PEYTON: But the Japanese (inaudible)?

21 DR. PRINCE: Well, (inaudible) catches (inaudible) long line. Let me put it that way.

22 MR. PEYTON: (Inaudible) in 1980.

23 MR. DUNNIGAN: Any questions? Okay.

24 MR. FITZPATRICK: The (inaudible) shrunk dramatically, and if you look just at the Japanese --

25 MR. DUNNIGAN: Your name?

26 MR. FITZPATRICK: Robert Fitzpatrick. If you look just at the Japanese catch, it's going up or
27 it's gone up, and it's relatively stable. And I know that the Japanese long line fleet has shrunk

1 dramatically.

2 MR. DUNNIGAN: I deal with the Japanese (inaudible) that I have got over a year, and they came
3 to me last year very concerned about these numbers being so high in the last year. And they told me it was
4 the matter of the number of vessels, and they were -- and maybe Jerry can recall over 300 of their long line
5 vessels in the Atlantic, 300 plus. And that may be a reduction from the earlier years when we had this, but
6 in recent times that's -- they are starting to step it up, total number of vessels. Jerry Scott.

7 DR. SCOTT: Can I just add to that point, that it's not just a function of the number of hooks
8 that they are putting into the water, but it's also the geographical distribution of those hooks, both in time
9 and space. So what you might be experiencing in the fisheries that are relating mainly to bluefin, it's
10 going to be quite different than the fisheries that relate to some of the more tropical zones. And that's one
11 of the features that we see, a high mobility of these fleets. In some years, they end up concentrating efforts
12 where you would expect higher than long-term than average billfish catches, for instance.

13 MR. DUNNIGAN: Okay, last question. Nelson.

14 MR. BEIDEMAN: Eric, at ICCAT the estimate that they had for the whole Marlins were released,
15 what's that like 37 percent on Blue Marlin?

16 DR. PRINCE: I think it was a little higher but --

17 MR. BEIDEMAN: So a total moratorium would only benefit by 37 plus those that survived in
18 the fisheries on post release?

19 DR. PRINCE: Is that a question?

20 MR. BEIDEMAN: Well, I'm trying to figure out time frame wise how much time you've got to
21 deal with this. I mean a total moratorium right now is only going to benefit 37 percent that are released
22 alive plus whatever post release that will survive.

23 MR. WILMOT: David Wilmot. But, Eric, you put up figures at the ICCAT advisory committee
24 meeting last fall that showed if you release all billfish caught, you have rebuilding of Blue Marlin in less
25 than ten years, rebuilding of White Marlin in less than 10 years. Is that correct?

26 DR. PRINCE: Less than 10 years?

27 MR. WILMOT: Wasn't it eight and six?

1 MR. BEIDEMAN: Something like that.

2 MR. WILMOT: Release of all billfish caught, admittedly, at least 50 percent or approximately 50
3 percent, maybe a little more, are dead, before they are released.

4 MR. BEIDEMAN: But they've put that much better than I do. What I was getting at is if the rest
5 of countries did what United States commercial long line fishermen are doing, how quick could we get
6 there, and how long can we put that off before that's not an option any more?

7 DR. PRINCE: I think a 25 percent reduction was certainly a step -- a stroke or step in the right
8 direction. I don't think we all -- I don't think anyone disagrees on that. Again, this is roughly 1,900 of
9 harvesting way out here still at (inaudible), so I mean, a half or 50 percent reduction is going to be 22
10 something, right? So if everybody takes that chunk and releases it, half those -- half the Blue Marlin that
11 come along side those long line nets will be released alive, and they all survive at 100 percent. You have
12 both -- you know you have both these assumptions. If we have full compliance, then, you are getting at
13 roughly about half or 50 percent reduction in the mortality. And what would that do, and how long would
14 that take? That's what I'm hearing.

15 MR. WILMOT: But I thought you showed that at the meeting last fall?

16 DR. PRINCE: Well, it was put in the context -- I think it might have been handled a bit --

17 MR. BEIDEMAN: Five years from now when it requires 75 percent, that's no longer an option.
18 And then you have to effect the directed fisheries Atlantic-wide in order to rebuild Marlin.

19 DR. PRINCE: You said that in a little bit different way. You said if you maintain below -- if
20 you can cut it down to 45 in ten years, and we had full control, total compliance, at 100 percent survival of
21 released animals, and you want 4,500 metric tons now and reduce it to 22 and still be -- you would be
22 decreasing it at a much lower rate, and still have a problem. It's just a little bit over 50 percent where you
23 start to get into that replacement deal of 1,920 metric tons.

24 MR. WILMOT: Which is getting at what Nelson said already we are going to have to go into the
25 directed fishery Atlantic-wide to get mortality of billfish below, if we are assuming 50 percent, of all caught
26 billfish are going to be released alive, which may be too high. This is a very worrisome problem, to try
27 and think about going at the directed fleets of Japan and Chinese Taipei, not just cut loose all their billfish,

1 but change how they are fishing for other species. This is really very, very upsetting.

2 DR. PRINCE: The (inaudible) fish mortality is almost three.

3 MR. WILMOT: I know. I know. It's just very discouraging.

4 MR. DUNNIGAN: Okay, thank you, Eric. We do need to move ahead. We are going -- what we
5 are going to do right now is set up for a breakout session. My wife likes to say that the mind can absorb
6 what the seat can endure, so it's about time for us to get up and move around a little bit. Here's where we
7 are going to come back to in about 15 minutes. We are going to have the billfish breakout group meet
8 around this front table here, and we are going to move some chairs in on this side while you all are taking
9 your break. So the billfish group will be meeting over here.

10 The staff working with that group are going to be -- who is working on billfish. Bob?

11 MR. DUNNIGAN: And Eric (inaudible) will (inaudible) the Chinese (inaudible) presentation will
12 also be with the group so, right around this head part of the table here is where we are going to have the
13 billfish group meeting.

14 The shark group is going to be meeting back in this corner, and we will line up -- we don't have
15 another room. We are going to line up chairs around both sides of the table, and the shark group. And the
16 staff on the shark group are whom? Carol and Margo. Okay. And the scientist that is going to be with
17 them is Jerry. Okay.

18 The swordfish group is going to be meeting on this side. Again, we will line up chairs around
19 both sides of the table. The staff people who are meeting with them are who? Fritz and Jill will be
20 meeting with you, and Steve will be with that group also.

21 The last group will be meeting over at the back table there where we have got all the papers set
22 up. We are going to clear those papers out, and that will be your working area. And the staff people that
23 will be meeting with them are Mark, May and Pat. Now, what we're going to be passing out, once you get
24 set up at your tables, are these sheets, which are the focus for the discussions you are going to be having
25 during these breakout sessions. You will notice on them that there are -- there are different boxes with lines
26 in them for different alternatives, and these can be filled out by individuals.

27 If the group has an opportunity to try to work some consensus, fine. Go ahead. That will be very

1 helpful, but the important part is once you get together as a group, you've got to designate one of your
2 own, not the scientist, not the staff person, to sort of be a facilitator and a leader of that group because that
3 person will be the one who's going to take the lead in presenting your discussions back to the group at
4 large later on this afternoon. So you've got to decide which group you are going with, head in that
5 direction, give us about 15 minutes and elect yourself a leader.

6 (Off the record.)

7 MR. DUNNIGAN: -- do what you have to do, and come back for the public hearing at 7:00.
8 Okay? Is that okay with everybody? We'll target to get out of here at 5:30. Rich?

9 MR. RUAIS: Is really a need to take that break or take that long a break? Why not start that
10 public hearing sooner than 7:00 in the evening? Is there an expectation that there is going to be a lot of
11 people coming?

12 MR. DUNNIGAN: Someone from National Marine Fishery Service has to help me, but I suspect
13 that once they have said that it is going to start at 7:00, they have to start at 7:00. And the people will get
14 here at 7:00. Okay? So we will plan on going until 5:30.

15 First, presentation up because they were the first ones finished, billfish, and their spokesman is
16 Dr. Nelson.

17 DR. NELSON: Thank you, Jack. You give incentives here. Work's done (inaudible) quickly.
18 With regards to targets, consider, too, my first -- my third alternative, the first alternative is set the target.
19 This is the optimal state of fishing. But the overfill state of the fishery should be in the biomass that
20 produces maximum sustainable yield. The second alternative would be at the biomass which 150 percent of
21 the biomass that would produce maximum sustainable yield.

22 The first choice is largely pragmatically driven. It is felt by most of the people on the panel that
23 by -- we should not establish in conservation standards target that is higher than that which is banded for
24 ICCAT and generally used in other international forum. Then, it would be more conducive or rational
25 argument at that forum than ICCAT. It's our domestical, just isn't their goal, which is the biomass at
26 maximum sustainable yield.

27 It was, however, argued also that given the objective of the billfish plan in the U.S. that it's a

1 recreational fishery and one of the objectives is to provide the maximum opportunity for exposure to the
2 fisheries. That really a fishery would be in a better position if it's a stock size above that, which is
3 maximum sustainable yield, one that would maximize encounters consistent with the catch and release
4 between the fishery's outlet. So that was argued by Dr. Claverie from New Orleans to discuss, but that was
5 a minority position.

6 There was also one that we all recognize that would, in fact, probably be more -- actually, more
7 consistent with the plan as it stands now. For a threshold or the overfishing threshold, we recommend .08
8 biomass, 80 percent of the level that would produce maximum sustainable yield.

9 We talked about the difference between the 50 percent level to a maximum sustainable yield. It
10 was noted that these fish are long lived that -- and the words that are on this position are that they have a lot
11 of misclasses, a lot of ages, a lot of fish in those year classes which just to bank on improvement and down
12 and out fluctuations and that because of the longevity and natural mortality, all be it, they do have a fairly
13 high reproduction potential. We felt that the threshold above the 50 percent at the BSY level was
14 appropriate and shows 80 percent.

15 For a recovery period, we recommend, the first alternative is 10 tens, given the projections, at least
16 the projections that we have based on the modeling we currently have, show that if we could get total
17 mortality until the landing's down just a little bit below replacement yield, in six or eight years you could
18 get back above that 80 percent over fishing (inaudible). It was also almost equally accepted to us that a
19 generation tide might be more rational. This, we felt, would probably end up being consistent with the ten-
20 year exception level in the Magnuson Act, depending on how those guidelines come about. But, again, the
21 very common sense assumption is that if you put regulations in place to change the status of this model,
22 that you might expect that the full impact of those regulations on the stock won't be felt until potentially
23 the year that those regulations go into place move through their life -- towards the end of their life, which
24 would -- it's not exactly, but it's roughly a generation time which is the time between replacement and
25 (inaudible). But lightly, just roughing it out on the back of an envelop, this generation time would
26 probably be more on the order of 12 to 15 years.

27 In terms of interim milestones, we recommend, and this is fairly pragmatically driven to given

1 ICCAT can do and what resources are, but we recommend that once we recovery has taken place that there
2 be a full-blown stock assessment every four years. This would involve all of ICCAT. It would require the
3 data from all the fisheries to implement the full forces of the ICCAT SSC. We also recommend, though,
4 that every two years, domestically, an update be given, and this is given on whatever information is
5 available and doesn't demand the collection requirements of a full-blown ICCAT stock assessment --
6 domestic catch with an effort indexes, size, term and result, any other information that can be brought
7 forward to at least give us a interim idea of where the stock is moving relative to the goal.

8 Alternatively, an assessment every three with a update every year or an assessment annually. I am
9 going to skip over the -- we talked about some benchmarks on the way to recovery, and what we
10 recommend are a couple of things. One is that when you conduct an assessment, that assessment shows
11 that the stock biomass is 20 percent or more below where you have projected it should be (inaudible) in
12 models or whatever projected -- projectory toward recovery. At a point estimate, when you do an
13 assessment and the stock is 20 percent or below where you expect it should be that you couldn't -- you get
14 another (inaudible) to examine what is going on and what you will have to change.

15 Ultimately, if the assessment is on or close to where you think you are, just go to the next
16 assessment. We also recommend that every assessment and review and advisory panel be assembled to
17 assist in reviewing that data and information and that one of the things that might be relative to the ages.
18 In terms of uncertainty, we think that we should have -- we should be 80 percent sure that the stock is at or
19 above the indicated reference point. In other words, if the estimate says that we are at, you know, at 80
20 percent of MSY, we recommend that the certainty and probability associated with that estimate be at least
21 80 percent or more than the stock, either at that point or above it, and alternatively, with respect to
22 assessing the recovery process. In other words, when you do the assessment you look at the projectory for
23 recovery, and you are trying to look at your point estimate, that the probability -- the certainty associated
24 with that would be 50 percent if you are at or above. You will accept 50 percent point estimate as at or
25 above where you think you are, 80 percent if it was below.

26 This was discussed in some detail, and it is kind of more or less a second and natural third
27 alternative with the (inaudible), and that's it.

1 MR. DUNNIGAN: Thank you. Other members of the group is that really what you talked about?
2 Did Russell faithfully convey what was the subject and the nature of your discussions? I am not asking for
3 minority reports yet. Honest?

4 DR. NELSON: That's why I haven't had a minority report. Actually, those two questions were
5 yes.

6 MR. DUNNIGAN: Okay. How about let -- members of the group, let's flesh this out a little bit.
7 What other glosses and minority reports do you want to put on what Russ told us?

8 MR. CLAVERIE: Okay. Thank you. I was the one who wanted to have the 1.5 biomass at
9 MSY as the target. The reasons are first off, in a recreational fishery, as I understand, one of the
10 characteristics is that you want to have more encounters with the fish and you want to have more trophy
11 size fish. Biomass at MSY has been characterized as a commercial fishery goal -- target, we now call it,
12 but a biomass at above that MSY is going to characterize as a recreational fishery goal. The 1.5 comes
13 from discussion with the scientist who participated in our group that that's a reasonable amount, so how
14 much over MSY should it be? That's why at 1.5.

15 On the threshold that goes along with that, narratively, that would be the threshold instead of .8 at
16 MSY would be MSY. But there are a couple of reasons for that. One is it's coupled to a target at 1.5, less
17 than 1.5, but it also happens to be what Magnuson-Stevens calls for in also happens to be what ICCAT
18 calls for. And I think relative to ICCAT's strategy, that if ICCAT finds out that we are willing to have a
19 threshold of .8, that that's the best that we will get from ICCAT. But if ICCAT realizes that the lowest
20 that we are willing to take is what ICCAT says we ought to have, we may have a chance of getting it.
21 That's it.

22 MR. DUNNIGAN: So your recommendation ended up being captured here in this alternative 2?

23 MR. CLAVERIE: Yeah, but it also filters down to threshold, biomass at MSY instead of .8
24 MSY.

25 MR. DUNNIGAN: You would have wanted to add another alternative here?

26 MR. CLAVERIE: Well, alternative 2 would be -- for me, alternative 1 would be biomass at 1 at
27 MSY.

1 DR. NELSON: Jack, that is consistent I think. That is consistent with what we have said, so
2 there -- the threshold should be in conjunction with alternative 2, BMSY. Let me ask a question about
3 process. I'm impression is that we are going to throw these possibilities out to staff. Rebecca's staff will
4 incorporate them into the next document -- the next version of the document and look at the information of
5 the alternatives that are presented here, and then that information would be given back to us the next time
6 we meet. Is that?

7 FEMALE PARTICIPANT: We may do that. We are going to get advice from our advisory panel.
8 We will look at what came out of this meeting, and we will also look at our obligations under NEPA,
9 obligations under Magnuson-Stevens to make sure we have got the range of options that we want to look
10 at, and, then, Russell -- hang on. Don't put your hand up. I'm not finished. Then, we will make every
11 attempt we can in the next seminar to, indeed, have some analyses of those alternatives that we have
12 selected as subset. We may get some of those analyses ready by the next meeting or it may be by the next
13 -- the second set of meetings.

14 MR. DUNNIGAN: Other comments from the working group? Other minority reports or parts
15 that you want to emphasize? Okay, let's throw it open to the group at large. Questions or comments?
16 Ray Bogan.

17 MR. BOGAN: Question. Ray Bogan. What is the practical effect of alternative 1 on the target,
18 that is in the ten-year period? I'm sorry, I mean the recovery period. What would be the practical effects of
19 the (inaudible).

20 MR. DUNNIGAN: Let's everybody please speak up. Speak up.

21 MR. NELSON: Can I speak to that?

22 MR. DUNNIGAN: Sure.

23 MR. NELSON: Russell Nelson. In response, we looked at what we have in terms of projectories
24 that you have seen that Eric had put together, and if, in fact, we could get a reduction stock wide to a level
25 just moderate -- just minutely really, below replacement yields, what we've done this far and what the
26 projection stock would be -- modelling done thus far, you could get a recovery above the 80 percent level in
27 six to eight years with just a very -- if you could get just a little bit below the replacement. Of course, if

1 we can't get below the replacement yield, there's not going to be any change in status level whatsoever. No
2 positive changes.

3 MR. DUNNIGAN: Other thoughts, questions? Comments? Phil, from the group of Art. Rich?

4 MR. RUAIS: Rich Ruais. Just a small point to most arguments are right now behind the .5.
5 I'm not sure that that's -- you know, at the plenary level or the panel levels at ICCAT that kind of strategy -
6 - let's show them that we really want to go, you know, way high on building up a spawning stock
7 biomass. It's going to have the desired effect that you want if we chose -- you know, forcing them to raise
8 their sights over they may want to be. I think in the past that -- in fact, it's demonstrated on some species
9 that we have had experience with where it's counter productive at the ICCAT level to go in there and show
10 ourselves to be that aggressive on that front, so that's just a word of caution. And we see it, I think -- there
11 was a time when the United States was being very aggressive in yellowfin until we decided that we really
12 weren't ready to be as aggressive as we thought we were in terms of the U.S. home position, and I think
13 that there are some that have looked at the billfish situation in hindsight now, especially after last year's
14 meeting, and thought that the unilateral position that the U.S. has found itself in hasn't really worked to the
15 advantage of the U.S. in terms of negotiating a fair situation across the board. Just some thoughts.

16 MR. DUNNIGAN: Mr. Claverie.

17 MR. CLAVERIE: As I understand, one of the things that Dr. Matlock told us yesterday is do the
18 U.S., do the Magnuson-Stevens, and this is what the recreational fishery would like to see, whether that is
19 the (inaudible) is something else.

20 MR. DUNNIGAN: Okay. Are we ready to leave billfish? All right. Let's move ahead then.
21 Let's deal with swordfish next, and the presenter of the swordfish is Pete Jensen.

22 MR. JENSEN: Here is something that Rebecca was doing on the side of the (phonetic) to -- what
23 we were talking about. Here's the diagram that was on the board yesterday, and so we concluded -- we were
24 here. That's where they are, swordfish. That's the problem we are talking about, for example, (inaudible).
25 (Inaudible) okay, can you hear me better now?

26 The other part of the orientation that I would speak to, again, thanks to Rebecca is using the other
27 diagram that Joe Powers put when we talk about thresholds and targets and recovery periods, and the thread

1 lines that you will hear me talk about as I go through our presentation.

2 We started out talking about specific quantities as a target. For example, what if we said we
3 needed an MSY of 13,000 metric tons. As we talked, we decided that as data comes in, as we continue to
4 evaluate things, specific targets probably aren't the way we want to go, and so we then went to three
5 different possible targets. One would be simply the biomass yields MSY, which is going to be perhaps a
6 different target at times, and then variations on that would be spawning stock biomass at MSY. And, of
7 course, that reflects that depending on what you take out of the population, you will arrive at a different
8 level that you want to talk to, and the other level would be spawning stock biomass based on recruits of 35
9 to 40 percent. So those are simply variations on the targets that we might select for swordfish.

10 The thresholds, we talked about thresholds in the sense that if we exceed a threshold or a minimum
11 level, then it triggers action, so these are presented in that context, that they could trigger action. Number
12 one would be a threshold that the biomass will return to the target in ten or less years.

13 MR. WILMOT: There's a support piece missing. MR. DUNNIGAN: Your name?

14 MR. WILMOT: David Wilmot. It won't make any sense unless we add it. That would be at F
15 MSY. Biomass will return to target in less than ten years at F MSY.

16 MR. JENSEN: All right. Good. Good point. When I rewrote this, I left that off. Number two
17 would be the biomass that would return to the target in five years, and number three would be the biomass
18 that is two standard deviations below the average MSY stock levels. And so what we were looking at was
19 different, I call them minimum, levels below which we don't want them to go even though we didn't accept
20 that as a clear definition. But those are the three levels that we would look at as the threshold remembering
21 that we use the diagram of threshold and target and the space in between.

22 Recovery periods, we talked about five years, ten years, fifteen years and put it in perspective.
23 Five years would be the minimum period that would be required if we had zero catch. The question was
24 raised as to why we couldn't think in a shorter period of time, and so as we went through it, thanks to
25 Steve's help, it was clear that that became a minimum because even if you went to zero, it would take you
26 that long to get to five -- to get back to your target. We think that the recovery periods in years ought to
27 be converted to an F rate so that we can track it a little more closely when the stock assessments come up.

1 And so we would recommend then that the time periods -- these three time periods we looked at, but that
2 they be converted to an F rate. And these are all based on, for example, the minimum period based on the
3 current condition, and that is, that we are at 60 percent, about .6 in the stock level that we are producing
4 MSY.

5 I didn't get finished rewriting my notes. Quotas. The first point in quotas is they are a product of
6 the things that we selected as targets, whether it be MSY or an F rate or whatever, and the other point that
7 we made in our discussion was even though quotas was the only management action listed on that sheet for
8 us to talk about, there are other management actions that ought to be considered when we talk about
9 achieving the target other than quotas, only we didn't have time to get to them.

10 The interim milestones, a stock assessment, preferably in two years. We talked about three years,
11 but we decided that two years would be preferable. And out of those stock assessments, we would be able
12 to determine these milestones: F rate, biomass and the ratios, spawning stock biomass, the trends and the
13 trends, and the note here is that we would like to be able to determine those trends within an 80 percent
14 confidence level for intervals. And if we were outside that 80 percent confidence level, that would trigger
15 adjustments in the F rate.

16 The uncertainties are many and substantial. There's a problem with ICCAT compliance, other
17 nations. There's a problem of not knowing what the bicatch is in other fisheries. There's the uncertainty of
18 environmentally-driven --

19 (End Tape 6, Side A.)

20 And there is the uncertainty of entrance of new countries in the North Atlantic fishery, and that's
21 it.

22 MR. DUNNIGAN: Other members of the panel, did he tell it like it was.

23 MR. BEIDEMAN: About that uncertainty, I would like to add --

24 MR. DUNNIGAN: Nelson.

25 MR. BEIDEMAN: The uncertainty of the stock theories and stock boundaries.

26 MR. JENSEN: Stock boundaries, you mean geographical boundaries?

27 MR. BEIDEMAN: Yeah, stock theories and stock boundaries, stock structure.

1 MR. JENSEN: What was the second part?

2 MR. BEIDEMAN: Stock structure.

3 MR. DUNNIGAN: Dave Wilmot.

4 MR. WILMOT: I apologize. (Inaudible). For billfish, they put the biomass at 0.8 MSY. We
5 would agree that the 0.5 was simply too low. We are at .5 right now, and at 0.5 we will need to be over
6 fished. I think it is important to point out here that the idea was to arrange it to the biology of the fish and
7 let that number be driven by how the fish are going to respond. Now, I'm getting caught in the natural
8 variability at MSY. Variability just because MSY (inaudible) the boundaries (inaudible), but you definitely
9 don't want to get down too low to the biology of the fish it would allow them very quickly to kick back in
10 even at half MSY. So it's very similar I think potentially to that .8 number that billfish -- we tossed out.
11 We won't know until the analysis are done. The second point, if you would turn please to the recovery
12 theories, I believe this is applicable for all. Here is the point now, .5 at MSY, so we talk about theories to
13 get back to the target, but what if we would find ourselves in the center position or related in that it would
14 be overfished, but we might get to .3. Hopefully, by putting this in place, we would never get there again,
15 but the idea is to have a formula, natural feeds can affect the conversion at this, find out what that starting
16 point 6 is needed to get you rebuilt in five years. Then, if you are going to down the road find yourself in a
17 certain scenario again, now, that might be different, obviously, if you are going to be starting from .3. So
18 the important point is you have to know where you started, where you want to go, and know what that F
19 is, not just a number of years that can tell you something so I think those are the only two things I wanted
20 to (inaudible).

21 MR. DUNNIGAN: Are there members of the working group? Minority reports? Okay.

22 Everybody, group at large, questions and comments for the group on swordfish.

23 MR. RUAIS: Rich Ruais. Was there any consideration of the impact of varying levels of
24 compliance or non-compliance by other countries to the target. I know you mentioned it as an uncertainty,
25 but in terms of tying into milestones and --

26 MR. JENSEN: The short answer is no. No.

27 MR. DUNNIGAN: Gail, did you want to comment?

1 MS. JOHNSON: Gail Johnson. At the beginning of it and also during our discussions, it was a
2 little confusing, to me at least, you know how this was all going to tie in, and what we agreed and say so if
3 you don't agree, was that this was what the United States would do if we had control of the North Atlantic.
4 This is what -- what you see up there is what we would want for targets and recovery rates period and things
5 like that. But -- and it may go as policy over to ICCAT. After ICCAT is done if we come back with
6 merely a quota, then, that's what the U.S. will do with the further caveat that we may have some extra
7 domestic management measures that would not affect the quota, but only maybe how the quota is caught.
8 Is that right?

9 MR. JENSEN: Yes. One other point that Gail reminded me of is that is we ask ourselves the
10 question here, and that is what are we talking about, from when to when? And so we base these time
11 periods on time present to the time we get to the target.

12 MS. PEEL: Ellen Peel. Pete, to get back to your target, what was your target level?

13 MR. JENSEN: This target?

14 MS. PEEL: Right. Okay.

15 MR. JENSEN: Our target would be that biomass that yields MSY, and we started talking about
16 some rather specific yield targets and then we moved away from that.

17 MALE PARTICIPANT: These are three alternatives?

18 MR. JENSEN: These are alternative ways of --

19 MS. PEEL: (Inaudible) thank you.

20 MR. DUNNIGAN: Okay. Les Habret (phonetic).

21 MR. HABRET: Can you describe what the thinking is behind number three?

22 MR. JENSEN: I would rather have somebody else explain that. Steve.

23 MR. DUNNIGAN: Steve Turner. Steve Turner here?

24 MR. JENSEN: Can you explain the spawning stock biomass recruit option? I know I will mess
25 it up.

26 DR. TURNER: Twenty percent SSBR.

27 MR. JENSEN: Right.

1 DR. TURNER: Fishing mortality rate that translates into that would most readily be around 4.1,
2 and it will translate into essentially fairly a spawning stock size that is about SSB -- the SSB will give you
3 MSY. All three of these are proxies for biomass at MSY. SSBR, 35-40 percent is proxy for number 2,
4 SSB at MSY. They are all saying about the same thing.

5 MR. DUNNIGAN: So they are not alternatives then? Different approaches? Is it just three ways
6 of stating the same thing?

7 MR. JENSEN: Yeah, I will tell you I interpret them to be three different ways of approaching it
8 because remember our discussion about these will differ depending on what you are taking out of the
9 population, what age classes and things of that sort, and so biomass is different than SSB, different than
10 recruits to SSB --

11 DR. TURNER: They will all be similar.

12 MR. JENSEN: They will all be similar but different ways of measuring them.

13 DR. TURNER: You may measure them different ways, but in terms of the spawning biomass,
14 the adults out there, they are all very similar. There are different ways of getting to the same thing.

15 MR. DUNNIGAN: Thanks, Steve. Any comments? Rich.

16 MR. RUAIS: When you -- your perspective when you were putting this together, were you
17 considering this only if the domestic -- sort of a domestic recovery program, not in any international
18 context of here's something we want to take to ICCAT.

19 MR. JENSEN: The way we talked about it, and the way I think the group agreed is develop a
20 domestic program. If something falls out of that that would influence our ICCAT position or something
21 that can be taken out of there and put over here, that's great. But if designing a domestic program, and I
22 think the point was made at many of the issues that we deal with domestically are really allocation issues.
23 We simply did not have time to get to those kind of things.

24 MR. RUAIS: Let me just follow up. The reason I mention that, I am not trying to beat a dead
25 horse, the experience we have had at ICCAT, and you've gone through it most recently, is that if you've
26 gotten not a lot of compliance from other nations as honestly as the United States is trying to do it. It
27 seems to me if you have got an opportunity to go to ICCAT now and set a program in place, then you

1 ought to link that program to compliance, and if there isn't compliance, then, there is a cost that has to be
2 paid for that compliance. That you want to put that cost back on the people that are incurring that cost to
3 the causing, and that's one of the things that we were focused on in the (inaudible), because that's in the
4 context of thinking that you are going to take, you know, your suggested recovery plans to ICCAT and
5 eventually have an agreement that says here it is. And it sort of sets out this (inaudible) of the process.

6 MR. JENSEN: Your point was well made by one member of our group.

7 MR. DUNNIGAN: Any questions or comments from the advisory panels about swordfish and
8 rebuilding.

9 MR. PYLE: Vince Pyle. A slight -- that's why I think we are a fairly confusing group because of
10 the lack of compliance that we have been experiencing. The rebuilding plans (inaudible) sort out the six
11 year -- the five to six years if you are at zero catch. Under our (inaudible) right now if all paid attention, if
12 it was not new countries coming in the North Atlantic, which is why the uncertainties are so big, we have
13 so much new fishermen coming into the North Atlantic. If we didn't have -- if everyone didn't fish over
14 1994 levels and there was no new countries coming in, I believe we reached target much quicker, but we
15 have a lot of faith whether this was going to be the message issue (inaudible) to argue.

16 MR. DUNNIGAN: Okay. Thank you. More questions? Charlie.

17 MR. MOORE: Charlie Moore. (Inaudible). Next page, recovery periods (inaudible).

18 MR. JENSEN: That one. Yeah, five years is the minimum because even at zero catch it would
19 take that long to get there to the target.

20 MR. MOORE: And if I interpret it the zero catch it was domestic wildlife (inaudible).

21 MR. JENSEN: North Atlantic, yeah.

22 MR. MOORE: (Inaudible).

23 MR. JENSEN: Yeah, so, obviously, that's --

24 MR. MOORE: So when you are talking about the target you are talking about when we are going
25 to (inaudible) in the North Atlantic?

26 MR. JENSEN: Yeah, so, obviously, that's not a very practical alternative period.

27 MR. BEIDEMAN: Yeah, Nelson Beideman, Blue Water. The whole time, Charlie -- I was told

1 the assumption was that if we had entire control out in the Atlantic, the North Atlantic what would be do?
2 How would we set up a recovery program? Now, the domestic piece of that, we are all ready to do it. We
3 are all ready to do it. The domestic piece of that, if it were up to us, we would already be rebuilding North
4 Atlantic surplus.

5 MR. DUNNIGAN: Mr. Claverie.

6 MR. CLAVERIE: Can you explain that to me a little more, Nelson? As I recall, that first chart
7 was -- doesn't that mean the first choice of that group is to have no fishing?

8 MR. JENSEN: No. These are not in priority. These really were what are reasonable time periods
9 that ought to be evaluated. We deviated from the priority list here, yeah. Yeah. Because we had a
10 discussion, for example, of why shouldn't that be three years. Well, three years just isn't practical because
11 even if you have zero, it's going to take five years. And so, then, obviously, you need something different
12 and at one point we had 20 years in here, and we marked the 20 out. We thought 15 was a long enough
13 period.

14 MR. DUNNIGAN: Other comments around the table? Questions?

15 MR. DONOFRIO: Jim Donofrio. Jack, I have question for Steve Turner on what we could
16 answer now. MR. DUNNIGAN: Steve, there's a question for you. Go ahead, Jim.

17 MR. DONOFRIO: Steve, I was wondering if there is any projections on zero catch for the
18 domestic long line fleet.

19 DR. TURNER: On swordfish, no we haven't made that.

20 MR. DONOFRIO: Can you provide that for us?

21 DR. TURNER: Well, it probably -- the simplest thing to do would be assume the other nations
22 are at their level and not (inaudible). What do you do with the other nations, hold them in steady? Let's
23 just assume you hold them in steady, so we report 2,000 metric tons. You take a third off of that which is
24 the U.S. so a projection -- if we ran a projection of 10,000 metric tons, and we are about to see, one third
25 of the catch being U.S. catch. If we get a little more specific, if you look up in the tables, we have a
26 valuable U.S. catch and you subtract that off, and you can look at my graphs or the graphs that the SERS
27 has done, and you get a good idea of what that projection will tell you.

1 MR. DUNNIGAN: Nelson.

2 MR. BEIDEMAN: Nelson Beideman. We tried that strategy in the past, and what that strategy
3 did was create a void and Atlantic nations scrambled to fill that void and ended up overkilling that void, and
4 that's still part of the problem that North Atlantic swordfishing is in. It's contributed to the problem.
5 When we got out ahead and made that void, it relieved them of their shared responsibility, and a lot of boats
6 were brought, a lot of new fisheries were developed and started, and they continued to expand.

7 MR. DUNNIGAN: Ellen, want to make a comment? Come forward a little bit, too, and make
8 sure you speak up.

9 MS. PEEL: If you can go back to the target, Steve. Now, that you have clarified those three
10 alternatives, they are really the same goal just measured in a different way, there is really only one option
11 on the table, and so I would like to make that -- a comment, first of all. That it is the only option is that
12 which is interim target that I don't have, we'll have to go back to Steve for that. And I am curious as to
13 why the panel members of the breakout group didn't consider any other alternatives.

14 MR. JENSEN: You mean an alternative such as what, another level of biomass?

15 MS. PEEL: The only legally possible alternative, as I understand it, would be higher biomass at
16 MSY.

17 DR. TURNER: It is basically consistency -- consistent with ICCAT, consistent with minimum
18 requirements of (inaudible). Obviously, we could have put biomass MSY 1.1, 1.2, 1.3, 1.4, 1.5. It's the
19 minimum level that is consistent with ICCAT (inaudible). I don't really think I have got much more of a
20 discussion. There are good -- there is rationale for dropping down a higher number.

21 MS. PEEL: I just want to know why this is the universe of all alternatives when there has been
22 only one option on it.

23 MR. JENSEN: Well, we did have a limited discussion, but decided we probably couldn't go there,
24 so why -- if a target could be something other than a biomass target, could a target be a stable, domestic
25 fishery or could a target be something of that sort, and we felt that we were bound into these kind of targets,
26 a biomass target. Now, that may not be entirely true and maybe that's a reasonable question to ask.

27 MR. DUNNIGAN: Ray.

1 MR. NEWMAN: Ray Newman. I was wondering whether another alternative, basically, could be
2 tell three (inaudible) which essentially -- virtually mean the same thing. But I thought we were spending
3 entirely too much time on the target that there was a lot of agreement on, and the recovery theory is that we
4 are getting (inaudible). I agree that if the group rolls those into one, the next one should be, according to
5 the Magnuson Act, a population above that (inaudible) determined for whatever socioeconomic, ecological
6 reasons (inaudible). I was opposed, if you remember that, (inaudible). As an alternative, if those can be
7 polled into a (inaudible).

8 MR. DUNNIGAN: All of this commentary or whatever is a part of the record, so it will all be
9 there for the staff to deal with as they are preparing the next iteration. Dave.

10 MR. BORDEN: Yeah, David Borden. We also discussed that point he raised in regard to MSY
11 from the perspective that you would generate higher MSY rates if, in fact, you change the selection pattern
12 in the fishery significantly. So when we started to question what the scientific basis for that -- for making
13 an estimate of what that would be, there really isn't a basis, at least right now, to estimate how MSY
14 would go up beyond that level. So that was one of the reasons we didn't want to include it, but there was a
15 discussion on the point you've raised.

16 MR. NEWMAN: It turned into a hand gear fishing (inaudible) in 1960 period. It probably would
17 require MSY levels population of a higher (inaudible), but (inaudible).

18 MR. DUNNIGAN: Folks, back to the audience for commenting really to speak up so that these
19 microphones on the table will pick you up. Ellen, another comment?

20 MS. PEEL: As I mentioned yesterday, when I was New England to (inaudible) Council we did the
21 definition of review panel, and this issue of selectivity pattern and how that feeds into the definitions of
22 targets has come over and over again, and it's that we questioned at the meeting the possible legal
23 clarification. What does the biomass produce at MSY mean? That the main biomass that produces MSY
24 under the current selectivity pattern of the fishery as it stands today or it mean MSY as it could potentially
25 be if we viewed the selectivity pattern in the fishery so it could probably be higher than it is now. And that
26 is familiar with (inaudible) and some others, but what I'm hearing, it sounds as if we (inaudible) and that it
27 could change the specific pattern of fishing mortality, you might be able to get a higher biomass at MSY

1 than what you have today. So that would be one possible alternative -- would be that which produces
2 biomass produces MSY for a real and significant high proximity pattern. Another -- what I was trying to
3 get at in a more general sense was the application advocacy (inaudible) principal to study targets and
4 thresholds, and if you do that, then, you could technically say that it would add some extra measure to your
5 definitions that (inaudible) approach so that to (inaudible) requirements of the minimums that we could get
6 away with under the current law would perhaps send the target a little bit higher and give you some leeway
7 for uncertainty in scientific information, biological information, possible catch overages, problems with
8 compliance, discard mortality, things of that nature. There are so many factors that you (inaudible) the
9 targets.

10 MR. JENSEN: Right. I think, in fact, we did talk about some of that, and we talked about it in
11 one sense in a little different way. And that is we talked about it in this sense, and that is, if this is your
12 target up here, and this is your threshold down here, and one suggestion, of course, was that ought to be 50
13 percent. Then, the more conservative approach would be maybe the threshold ought to be moved up here
14 some where. Maybe it ought to be, as one of the other groups suggested, somewhere around .8, so that
15 you weren't facing a situation where you were bumping up against this line all the time or if you were up
16 here, you waited until you got way down to 50 percent before you did something. That's another
17 conservative way of thinking about things, and that is, the range within which you are operating between
18 the threshold and the target that you want.

19 MR. BEIDEMAN: Nelson Beideman, Blue Water. One of the things that was also discussed was
20 if that is too high, then, you would be kicking in a rebuilding program every other year because of natural
21 fluctuations in the biomass. It wouldn't be able to (inaudible) on those points.

22 MR. JENSEN: Nelson's point is this. Is if you had that line up here at 90 percent, then, you are
23 allowing yourself 10 percent before you have triggered something if you went below your threshold, and so
24 the range has to be a workable range.

25 MR. DUNNIGAN: Ellen.

26 MS. PEEL: If I understand, that does not affect the -- you could (inaudible) into your target?
27 (Inaudible) your threshold definition. It doesn't have to affect the definition at all, so it wouldn't necessarily

1 cause you to develop a rebuilding plan every time you fell below the target. In fact, the idea of the target as
2 Sam (inaudible) said yesterday, was the target is the goal, and you expect to fluctuate, but not go below it
3 all the time, because natural variability and unnatural variability, certainly. They don't necessarily go
4 together.

5 MR. JENSEN: Well, I guess I --

6 MS. PEEL: It is just a higher target, and not (inaudible).

7 MR. JENSEN: I guess I would ask you what your interpretation of threshold? How do you think
8 about a threshold? What is it?

9 MS. PEEL: A threshold is the way our feeling in our committee has been, I'm interpreting it as
10 something that we should not overload to avoid going below, and if you find yourself below it, you need to
11 do something as quickly as possible to get above it.

12 MR. DUNNIGAN: Well, I think -- I think we can probably be fairly creative in the way that we
13 characterize numbers with these things. Pamela spoke yesterday about first line of defense and second line
14 of defense, and we could actually construct the program that has a thorough report, that some -- we used to
15 use the term called points of concern, you know, where it got to a certain level you would want to examine
16 it, perhaps take action. I think here this is being used in a different sense, though, where -- and we've talked
17 about this in a couple of fishery management plans, too, where if you hit it, you can, and it is not
18 discretionary. And you are required to respond so that you can know with more certainty that you are going
19 to need your targets. But that, in theory, I think you are probably right. We're sophisticated enough that
20 we could craft a program that would do lots of different things depending on how prepared we are to make it.

21 MR. DONOFRIO: Jim Donofrio. Regarding one of Ellen's comments, I was wondering how we
22 could be selective in size of swordfish for the year that we are fishing for swordfish we are nonselective.

23 MR. DUNNIGAN: We are going to talk about selectivity tomorrow, but -- I think.

24 MR. JENSEN: I think the point was made, Jim, that the American fleet, at least, has made some
25 progress in reducing the catch of immature fish, and so --

26 MR. DONOFRIO: You are talking about creative regimes. I think part of creativity has to be
27 eliminated.

1 MR. JENSEN: Sure.

2 MR. DONOFRIO: By long lines that can catch size selected fish. (Inaudible).

3 MR. DUNNIGAN: Charlie Moore.

4 MR. MOORE: Charlie Moore, South Carolina. The catch and the landings is something

5 different. In other words, I am not sure what (inaudible) catch (inaudible).

6 MR. JENSEN: Fair enough.

7 MR. DUNNIGAN: Other comments on swordfish?

8 MR. RUAIS: Rich Ruais. Why did the group put down five years as a possible time frame when

9 that's totally unrealistic?

10 MR. JENSEN: We really didn't. We sort of deviated from the alternatives there and really said we

11 ought to be evaluating different time frames, and then, we first put down 5, 10 and 15. And, then, with

12 Steve's help, we began to analyze them and ask him how do we establish a way to get there, and his answer

13 was you can get there in five years if you have zero catch. And so this became more of a reference point as

14 to what was possible than it is a recommendation or an alternative. It is just the way that the discussion

15 developed.

16 MR. DUNNIGAN: Nelson Beideman.

17 MR. BEIDEMAN: Rich, I actually had the courage to add in 20, not because I think that's

18 practical either, but as a negotiating position at ICCAT to have that information, to have that on the board.

19 MR. DONOFRIO: That's kind of my point. I just think it is counterproductive to put things,

20 especially if it is going anywhere beyond this group, put anything that's totally dead on arrival and offer it

21 out for any kind of public consideration whatsoever.

22 MR. DUNNIGAN: Remember what Mariam told us yesterday about meeting them, too, in terms

23 of at least needing to acknowledge alternatives that you recognize from the start as are outside the

24 (inaudible). Even Bob raised the question this morning about things that are not allowed by the statute, and

25 Mariam said for NEPA purposes they are still possible to lay out.

26 MR. JENSEN: This really ends up answering the question, Rich. Why can't you do it quicker

27 than five years? Well, that's why you can't.

1 MR. DUNNIGAN: Chad Henman (phonetic).

2 MR. HENMAN: Yes, I want to point out that 5, 10 and 15 years comes from standing (inaudible)

3 resolutions, looking at company options (inaudible), so it is not something that necessarily dead on arrival

4 (inaudible) ICCAT, (inaudible) to look at and that's why that range of recovery period I think makes perfect

5 sense, both domestically and international level.

6 MALE PARTICIPANT: What year was that?

7 MR. DUNNIGAN: Nelson.

8 MR. BEIDEMAN: '95.

9 MR. DUNNIGAN: David.

10 MR. BORDEN: Yeah, David Borden. The assumption about not being able to reach the target

11 within five years is based on exactly the same selection pattern in the fisheries, and there was a great deal of

12 discussion about how to change the selection pattern, which would mean that you, in fact -- you could reach

13 your target within five. If you could figure out a way to eliminate 1 and 2s and 3s, you can get there in

14 five years.

15 MALE PARTICIPANT: You made it pretty clear that if not one swordfish was killed, it would

16 take five to six years to reach (inaudible).

17 MALE PARTICIPANT: That's correct. You have that right, these three alternatives. You had it

18 right (inaudible). If (inaudible) every five or six years, (inaudible) to go over the current situations to

19 BMSY SSB MSY.

20 MALE PARTICIPANT: (Inaudible).

21 MALE PARTICIPANT: That's correct.

22 MALE PARTICIPANT: So it would be close with that 15 or 20 (inaudible) shot down the

23 (inaudible) too far out. I guess if you would like to (inaudible).

24 MR. DUNNIGAN: Let me just make a comment from a personal perspective, so that you don't

25 get --

26 (Interruption to tape.)

27 You folks may have thought that you bought in or closed out alternatives. That's good advice for

1 the National Marine Fishery Service. It doesn't necessarily mean that some of the alternatives that you
2 decided not to deal with might not show up in the documents, okay. Not because anybody thinks you made
3 a mistake or it's a bad idea, but they are going to be concerned about having the full range of issues
4 explained so that they will have their need (inaudible). Okay. Rich.

5 MR. RUAIS: Rich Ruais. Why not 20? Why was that -- why not focus more on today? I am
6 always told that we don't have control over the other countries. We are here to talk about the restitution,
7 but how are we going to discuss the recovery period, if we eliminate domestic harvesting completely.
8 Forget what type year it was. Let's just not. Let's don't catch anything domestically. We have got in
9 excess of ten years to rebuild, ten or 15. So 15 to 20, 20 to 25 is much more practical.

10 MR. BEIDEMAN: You would probably have to go that far out. Nelson Beideman, Blue Waters.
11 Because even if you took us out of the equation, I doubt that it would be enough with them not in
12 compliance to do anything. I mean, it would -- it's a doubt that we should wouldn't be below replacement
13 yield. So you would have to consider 20 years or more.

14 MR. DUNNIGAN: We are getting to the point where we are going to want to move on from here
15 in a minute or two. Another comment around the table? Rich.

16 MR. RUAIS: Rich. So what was the argument against including the 20 as a number?

17 MALE PARTICIPANT: Are they the hardest to remove --

18 (Interruption to tape.)

19 -- the Magnuson Act, the rebuilding period should be as short as possible. You can interpret that
20 any way that you want, but it -- I think in my view it means that we should be setting sights as high as
21 possible to restore the fishing as soon as possible unless you start saying, oh, well, it's not going to be in
22 compliance, start talking about those 20 and 25 year options, it's lowering your sights and you can pretty
23 much guarantee that's what you are going to get. I don't think the majority of the people have found that
24 that was acceptable. (Inaudible) operating in five years (inaudible) for the fish. I will go back to an earlier
25 comment I made and that is, we sort of assumed that these documents were going to be prepared NEPA, the
26 fishery management plan, there's going to be an evaluation from various time periods, and we had 20. We
27 had 15 at one time. We simply took out the 20, and so I think that that was a consensus that this was a

1 fair range of recovery periods to analyze for purposes of developing a plan.

2 MR. BEIDEMAN: And I'm just trying to bring out some possibilities of what might happen
3 when this is ultimately taken to ICCAT and (inaudible) and may very well be supported whether it is
4 acceptable or not to them or to others. There may well be support for a longer at ICCAT, and, certainly, in
5 our interpretation could be defended.

6 MR. DUNNIGAN: Other comments. Getting ready to move on. Alan Weiss.

7 MR. WEISS: The question that came up in the billfish discussion, and I think also applies to the
8 discussion that's been going on here is that if we specify a given recovery schedule domestically in our
9 domestic FMPs for these species and then go to ICCAT and negotiate on the basis of what we put in our
10 domestic FMPs cause I think you can find support for doing that in the law, but then at ICCAT, as is the
11 nature of the beast in a negotiation, we can hope to get what we ask for. But it would be foolish to expect
12 to get what we ask for, and we get something else. Let's say we have a ten-year recovery schedule in our
13 domestic FMP, and ICCAT stipulates 20 years, just for argument's sake, what is the process, and I think
14 I'm talking to Mariam -- what is the process by which the international agreement interfaces with the
15 domestic FMP when there is an apparent inconsistency between the two? And I'm aware that the law does
16 provide flexibility for longer rebuilding schedules in consideration of international agreements, but how do
17 the two relate, what takes precedence or that sort of thing?

18 MR. DUNNIGAN: Mariam, do you want to comment? Mariam, do you not want to comment?

19 MS. McCALL: Yeah.

20 MR. WEISS: Would you do it anyway though?

21 MS. McCALL: Well, I don't think it's an issue, though, of one taking precedence. I think we
22 have to look at that. We have to take the facts into account, what was our position going into the
23 negotiations, what did we -- how did we participate in the negotiation, did we -- you know, it's going to be
24 policy calls at the time. Once we come back from ICCAT if we've got a number, did we -- generally, if we
25 participated in the negotiations and negotiated in good faith, we generally come back from ICCAT and
26 accept that recommendation and don't object to it. So a lot of it is going to depend on what we decide
27 going into the negotiations, is our negotiating strategy in our U.S. position, and so in that case, that is a --

1 as I said earlier, a foreign affairs function. It's not an issue of one taking precedence over the other. It's an
2 issue of looking at the policy concerned toward the United States.

3 MR. WEISS: But a year from now, let's just for argument's sake say, we have an ICCAT
4 developed recovery schedule for Atlantic swordfish that calls for a recovery period of 20 years, and we have a
5 swordfish FMP that has a recovery period of ten years. And a year from now you are holding this document
6 in this hand and that document in that hand and what are we actually to do?

7 MR. DUNNIGAN: I think what Mariam is saying is that at that point the National Marine
8 Fishery Service is going to have to make a decision, that there isn't anything (inaudible) that gives the
9 answer to the question.

10 MS. McCALL: Right. And it will depend on what the ICCAT recommendation is it quotas, you
11 know, and, then, we will have to look at the restrictive language in the statute as to the extent to which we
12 can do anything that has the effect of increasing or decreasing the quota. We would have to look at
13 additional measures that we could take domestically that might increase our rebuilding or decrease our
14 rebuilding time measures in addition to quotas. And, then, we would have to look at the other language --
15 the other provisions in the statute such as the one that says we can't -- you know, that our rebuilding period
16 has to reflect traditional participation by U.S. fishermen relative to their foreign competitors. So there's all
17 these factors we will have to take into consideration. There's no block I can answer today.

18 MR. DUNNIGAN: Let's just take one or two more comments and move on to bluefin. Gail.

19 MS. JOHNSON: Gail Johnson. It seems to me, that notwithstanding what you have just said,
20 Mariam, that which isn't complicated and very simple, we just predicated our whole discussion of the
21 swordfish wish list on the fact that what we want to happen, what we negotiate to happen may not happen,
22 and if it doesn't, then, the quota that we get from ICCAT translated into domestic measures, but based on
23 ICCAT's quota, is what we get. Am I wrong? You have got to say it simple.

24 MS. McCALL: That's what you get, yes, but, then, I think the next question will be for the
25 agency is there more that can be done and is there more that should be done consistent with the law and
26 with policy.

27 MALE PARTICIPANT: So the agency wants to (inaudible) the law?

1 MS. McCALL: No.

2 (Simultaneous conversation.)

3 MR. DUNNIGAN: Let Gail follow up.

4 MS. JOHNSON: It's -- do you mean as we discuss -- you weren't there, but we discussed in our
5 panel that domestic management could take measures under that quota that would not change the quota but
6 might change how we catch the quota, and is that what you mean, that the quota itself won't change, that --

7 MS. McCALL: I think other measures are certainly things that the agency will have to look at
8 and determine if those other measures are appropriate, if they are consistent with the other legal
9 requirements of the law. I can't -- we can't now determine if, you know, yes, that will be what will be
10 done. We will have to wait and see, but I think it's certainly a possibility that the agency will have to look
11 at.

12 MALE PARTICIPATE: (Inaudible) that was -- we didn't unequivocate about that. Our group
13 recommendation is that we catch the ICCAT corridor.

14 MR. WILMOT: Dave Wilmot. I don't know who said that. What I've heard from I'm hearing
15 that maybe it's time to bring this discussion to an end. It is possible that the United States could take a
16 negotiating position to ICCAT, negotiate and lose, depending on how the negotiations occurred, object, to
17 the ICCAT recommendation and, therefore, we would not be bound under the Atlantic Tunas Convention
18 Act to hand out that quota as it is. Is that a possibility?

19 MS. McCALL: That certainly is a possibility.

20 MR. WILMOT: As a matter of law?

21 MS. McCALL: As a matter of law.

22 MR. WILMOT: Therefore, I didn't agree that any quota handed down by ICCAT which would
23 simply be handed to the U.S fisheries.

24 MR. DUNNIGAN: I think we've gotten the end. We pretty fairly (inaudible). I think it's
25 probably time for us to go ahead and move along. Last comment.

26 MR. BEIDEMAN: Nelson Beideman, Blue Water. Just to reiterate something that Gail said
27 earlier, that was not the premise of our discussions. The discussions that we had at that table over there

1 were premised on the what if the United States had total control of the North Atlantic situation.

2 MR. DUNNIGAN: Okay, thank you. Thank you from this working group. The next one up is
3 bluefin, and I suppose there's always a departure from norm, so the bluefin presentation will be given by
4 one the staff people. That will be Mark Murray-Brown.

5 MR. MURRAY-BROWN: I guess it's just the nature of the beast and would hope (inaudible).
6 For my sins, I thought I got down and started writing, and then the group, unbeknownst to me, decided all
7 right, he's written it up. And he can present it. Can you hear me okay? So listen, I have asked the group
8 to make absolutely sure that as I present material we discussed if there's anything as I describe it that doesn't
9 ring true, no matter what the (inaudible) is, they are going to jump right in. I hope they do. They have
10 told me they will. So I will try to do a good effort to do that, and just go through the options, just go
11 through what we analyzed.

12 We started actually a little off track. Instead of going through the different alternatives by subject,
13 what we started doing was trying to phrase an option in terms of the whole package, the whole thing all at
14 once, and so I'm just going to go chronologically through the train of thought. I am just going to jump
15 and go back and forth a little bit, but as I can, I will try and group some of the elements.

16 The option that we started with was, basically, this whole issue of this international domestic
17 intermix, and how internationally it's a big, big component of ICCAT of what we do at bluefin tuna. So
18 one of the options we decided to talk about was, basically, to keep the status quo in the west in terms of
19 whole quarter allocation, how it's divided, the whole bit, to have an objective of MSY in the west, but,
20 then, really to put the emphasis on this option on the east -- in the eastern Atlantic. And to, basically, to
21 drive them into compliance with their existing MSY and with the existing management measures. So the
22 assumptions that went behind this option was to hold the east to their quota of 25,000 metric tons and in
23 the Mediterranean, to get compliance to minimum size, and, of course, the key part of this is mixing, a big
24 assumption that mixing takes place, so that the benefits that you see in the east would indeed -- the
25 ramifications would come true in the west.

26 We, then, decided to go through the list. We actually had consensus, as far as I can tell, maybe
27 that's an incorrect word, but in terms of targets, we talked about biomass and the spawning stock biomass

1 at MSY. Once again, that's stipulated by ICCAT, by the Magnuson Act, and we talked about a threshold
2 in terms of half the biomass at MSY. And throughout this discussion, those are the two things that we
3 pretty much stopped. I recognize that there is concern that that is just one option, but we didn't stray from
4 that. We felt pretty good that we actually agreed on something, so we didn't rattle that one.

5 In terms of definitions of overfished and overfishing, we were comfortable -- oh, here it is. State
6 the biomass to which one would recover within ten years, and, then, basically, expressing the Magnuson
7 definition -- Magnuson Act definitions as verbatim, as stipulated in the Magnuson Act.

8 We ran this action a little bit further in terms of talking about recovery periods, and the quote here
9 for this particular option, sort of running through it, --

10 (End Tape 6, Side B.)

11 PARTICIPANT: As you move up the directory, either up above or below. Apropos the fact that
12 this is so tied to the east, there would also be a review of the east. Every time we (inaudible) of what has
13 happened to the east, certain triggers would take place as to how the east was doing. With the one of
14 triggers, Hale used to send letters to ICCAT or to the State Department if the east continued to be out of
15 compliance. As the flip side would be, we would also send them and thank them if they were in
16 compliance.

17 That is how that was written. Quota during the recovery -- we talked about that. Once again, we
18 wanted to talk about that loosely in terms of frameworks, increasing or decreasing the quotas as appropriate
19 based on the assessments -- the assessments that provide the trigger every two years, and the quota would go
20 up or down. So in that sense, we were not in agreement on a constant quota, but rather a varying quota for
21 this option, again.

22 When we sort of came to the end of this option, what we had was sort of in the sense of this
23 overriding business with the international community. We had sort of these principles that began to sort of
24 pop up, and this is sort of an extension of this precautionary approach that we've been hearing. And the
25 group wanted to emphasize the fact that the precautionary approach applies to the human environment and
26 the socioeconomic factors as well as to the biology. I think there had been a sense that the biology had
27 been emphasized in the precautionary approach, and they wanted to -- how to flavor the human

1 environment should also be considered the precautionary approach.

2 And, finally, if -- well, not finally -- as another principle relief in subsidies be part of a recovery.
3 If there is a sense that certain people in certain parts of this industry were going to take a hit, there should
4 be some compensation for that. All right. So that is that option as sort of an option with various
5 elements.

6 We then decided to talk a little bit more on track in terms of these alternatives. Once again, the
7 target and the threshold pretty much stay the same. We didn't really vary much on that. Here we had started
8 talking about recovery periods in terms of -- with different numbers. We looked at 10 years and right off
9 the bat, we were informed that even with no catch, biologically impossible. Scientifically, we were told
10 that.

11 In 20 years, we were told that this is no longer a viable fishery. It would require subsidies for
12 dislocation in all sectors. This 20-year recovery period translates into a 500 ton metric ton quota for the
13 entire west Atlantic, if you're familiar with that, sort of the subdivider between Japan, Canada, and the U.S.
14 So essentially the United States fishing people would get smaller than this.

15 And, finally, an option that was non-qualified -- it wasn't a 10 or 20. It was a time period by
16 international agreement with a recovery as phrased by the international community. We then talked about
17 the status quo alternative, the current metric ton quota -- again for the entire Atlantic -- 23,000 -- 2,350 odd
18 tons. And we talked about changing that quota below the replacement yield as changes from the
19 assessments go up or down. So that quota was flexible, depending on how the assessments are coming in
20 to make sure that you're constantly below the replacement yield.

21 We talked about quota allocations and every year there is a rather intense debate about specific
22 tonnage between the various user groups. There is a suggestion here, an option that the quota allocation be
23 expressed as a percentage of the historical traditional fishing pattern. so whatever quota does come out of
24 the pipe, the rebuilding plans, including the specified -- just a set percentage -- so that debate to a certain
25 extent is muted.

26 The -- we got into some principles again here. As far as the quota allocation, there was almost --
27 we found ourselves a little bit reiterating some of the Magnuson Act standards, but we sort of boiled it

1 down to -- well, this one up top is the -- make sure there is a fair and equitable distribution so that no -- I
2 think there is one -- no user group acquires an excessive share in the future.

3 PARTICIPANT: It will just (inaudible).

4 PARTICIPANT: All right. Then what happened is I -- quota allocations -- the Bluefin tuna is
5 always such a contentious issue. We didn't really want to talk about it per se, but we did want to pick up
6 on the fact that in these presentations in the EIS there has been a discussion about how reduction of the
7 small fish component of this fishery may -- would increase the recovery rate. It's been expressed a couple
8 of different ways in the past.

9 The group wanted to express a concern. The concerns exists that while the catch of the juvenile
10 fish amongst some people. So just saying -- just to express that concern. The flip side then came
11 apparent, that there was concern about the catch of the large fish amongst some people. And there was a
12 minority report -- the majority was not concerned with either of these two factors, if the trajectory is going
13 up.

14 So if we're on a parts recovery, the assessment is showing an increase -- the majority, but not
15 everybody agreed that this juvenile versus adult fish debate wasn't necessarily of great concern. We talked
16 about milestones, and here we asked Joe to jump in again -- Joe Powers -- and reiterate his model how as
17 you're on a trajectory, you may need these mid-course adjustments as you're above or below -- you're above
18 or below your trajectory. And if you find yourself for some reason at a fishing rate above what it is
19 supposed to be, you work out what that -- what you've done to the biological -- to the stock to be in this
20 way -- and you readjust your fishing pressure accordingly.

21 And you have this -- you have this internal rechecking to make sure you're on your rebuilding
22 plan. The group broke out two ways on this. If you want to -- if the rebuilding plan is to talk about this,
23 there was a group was to -- well, they should be quantifiable triggers in the trajectory tied to quantified
24 adjustments. So these triggers are qualifiable, a priority in the rebuilding plan.

25 Another school of thought was that this should be a process for review and consideration by the
26 SCRS for program adjustment. So more of a qualitative framework readjustment that would go under
27 review. And, finally, (inaudible) under the list of uncertainties where we had many, but we tried to -- we

1 ended up sticking to two that were of key importance to the group.

2 One was that the rate and effective mixing and its implications to domestic management. We
3 heard a lot about that today and how this east/west stock structure is of ongoing concern. And we talked
4 about how -- well, we talked about how, as a stock structure issue is re-examined over time, if periodic
5 reevaluation provides evidence that suggests there is a different stock structure, then that should trigger a
6 plan amendment to start addressing this whole business of the one-stock, two-stock theory or multiple
7 stocks. And there should be a triggered plan of action to deal with it.

8 That was one level of uncertainty that we were discussing. Then we realized that at another level
9 of uncertainty -- I think we were finding -- we were really trying to grab with what the minimum
10 probability evaluation criteria were about. And then it dawned on us that probably more of a specific
11 response to that item was that, for any management action under consideration, there should be an 80
12 percent probability of a desired effect, so that we had a certain -- we have 80 percent certainty that what we
13 were doing was going to get us to where we wanted to be.

14 Another school of thought said that that was unrealistically high and that they would prefer the
15 same phrase but with a 50 percent consideration. This has everything to do with those trajectories that you
16 see where those arrow bars and the intent would be to lift the whole thing off the threshold or off your
17 target to make sure your 80 percent sure you're where you want to be.

18 I think we then finally decided we had enough.

19 PARTICIPANT: Or you ran out of time.

20 PARTICIPANT: We ran out of time. We ran out of time.

21 PARTICIPANT: Very good. Thanks, Mark.

22 PARTICIPANT: Thank you.

23 PARTICIPANT: Members of the Bluefin Subgroup. Anything you want to add to the report
24 there? Rich?

25 MR. RUAIS: I think Mark did a pretty good job of summarizing what we did. I think we were in
26 that discussion for what, an hour, an hour and a half?

27 PARTICIPANT: Two hours.

1 MR. RUAIS: Somewhere along that line. So I think we had some good back and forths. One of
2 the things, Mark, that I think was left out a little bit, though, we sort of started the whole discussion with
3 the understanding now that the latest stock assessment shows that bluefin is increasing and that the projects
4 -- bluefin in the Western Atlantic, if you will, are increasing. The last two stock assessments show
5 somewhere around a 23 percent increase in the biomass, and the projections show our moving, obviously,
6 in the right direction.

7 Granted, right now they show that it would be a long time at the current rate of recovery for total
8 recovery, but nonetheless those are based in part upon some assumptions -- assumptions about
9 improvement that some of us are not very comfortable about at all, especially in light of often stated
10 concerns that you shouldn't rely too much on recruitment estimates beyond three to five years. That is a
11 serious issue for us on the bluefin front.

12 The other thing is on the mixing issue, you know, we think we're in a time frame now where
13 things are rapidly developing. The information is developing with the new technology, and if the East is
14 brought under control, you could be looking at very sizeable increases in just the reductions in quota from
15 the 44 or 42,000 ton level right now down to the replacement yield would leave many, many thousands of
16 fish in the water, some portion of which would come West as well.

17 And I think that was weighing on our minds that, you know, U.S. fisherman and the Western
18 fisherman have done quite a bit to advance this stock recovery, and we want a level playing field, and that is
19 why we also talked about linking further changes to the Western program dependent upon proof, indeed, that
20 the East is beginning to participate in the conservation program. I'll stop there for now and contribute as
21 we go along.

22 MR. DUNNIGAN: Thank you. Other members of the subgroup?

23 MR. BOGAN: Thanks, Jack. Ray Bogan. One of the things we got into was frame work
24 mechanisms that -- in which we could implement or give a little bit of flexibility to NMFS in order to
25 carry out either reductions or increases in quota. We didn't get into specifics when we wrote things down,
26 but we did come up with certain types of mechanisms by which you could adjust up or down.

27 For example, bag limits, seasonal restrictions, gear-type restrictions, reduction or increase in

1 catches per certain categories means that it's going to improve data -- whatever it might be. There are
2 many, many framework mechanisms that could be written into this thing. The hallmark of all those
3 statements, however, was that NMFS needed the greatest amount of flexibility to adjust either up or down.
4 So while we only said framework mechanisms, we want to make sure that we need the most possible.

5 We've seen other fisheries management plans when there are restrictive framework mechanisms
6 that we get with some real trouble and a lot more heartache winds up being incurred by various user groups.
7 The other thing that -- it seemed elementary -- the concern for reduction of small fisher. Carl raised it, and I
8 think he raised a good point. And, likewise, the reduction of large fish. It is not as elementary as it may
9 sound because it goes to certain fundamental principles of how are we going to recover from the stock
10 standpoint.

11 So I think most of us, you know, when we consider what had been stated, we knew there was a
12 reason for it. The majority of us, not all, certainly Carl didn't agree with the idea that in the event we can
13 continue to see an upward trajectory that we're not going to be concerned about it. Most of us did,
14 especially those in industry, say that if we continue to see increases in the biomass, that we're not looking
15 to adjust in any significant manner, or reduce in any significant manner even the catch of small fish, or
16 increase significantly the catch of small fish or of large fish.

17 But it has been such a monstrous issue that for those folks who have not been in the middle of the
18 bluefin battle, it is worth raising. It seems fundamental, but, boy, I'll tell you, when you've gotten your
19 head smashed in about 30 times on small fish, or on big fish -- whatever it might be -- we can't emphasize
20 enough what a big issue it is.

21 MR. DUNNIGAN: Thank you. Other members of the group? Other members of the working
22 group that want to add or have minority reports, clarify anything? Okay. Good.

23 PARTICIPANT: Well, I was just --

24 MR. DUNNIGAN: Let's move to the group at large. Let's move to the group at large.
25 Questions or comments on the presentation on behalf of the bluefin break out group? Nelson.

26 MR. BEIDEMAN: Nelson Beideman, Blue Water. To raise a point. I want to -- you know, this
27 is very, very important to us. I want to be very clear on this. then if I get what you're saying, then

1 approximately 75 or 79 percent immature bluefin tuna was okay with the group. Okay. Very good. You
2 know, I can live with that. I can live with that.

3 PARTICIPANT: I don't know that 79 percent is the amount because there are uncertainties with
4 regard to maturity levels on both East and West, so there is a lot more refining and fine tuning that has to
5 be done. What I'm saying is that the present level, and not everyone agrees with this, to be clear, but the
6 present level of catch -- the apportionment of catch between juveniles and mature fish was deemed
7 acceptable by a majority of the group.

8 MR. BEIDEMAN: You know my background. You know that I am -- how important that
9 fishery is and at the same time you know how important I feel that, you know, the swordfish fishery and
10 American consumption is equally as important. Now 79 percent is okay for one, 79 percent should be
11 okay for another. Now --

12 PARTICIPANT: Time out. I don't agree. I don't know that it is appropriate for me to respond,
13 because there are a number of reasons. Life history is a little bit different. The litmus test for giving up
14 quota for monitoring purposes for the Atlanta bluefin tuna might be different than swordfish. I don't know
15 that, but you could answer that better, but there are a whole lot of reasons why we have a certain breakdown
16 of bluefin catches, and it might be a little different than that in the swordfish. I don't know, and I'm not
17 going to debate it. I'm just telling you what our position is with regard to bluefin, and that's it.

18 MR. DUNNIGAN: Carl?

19 MR. SAFINA: Also I think it was the majority of the group's opinion that that was okay, as
20 long as the trajectory --

21 PARTICIPANT: Yes. I did say (inaudible).

22 PARTICIPANT: And I did voice a concern that large numbers of catches of small fish are
23 troubling to me as far as the speed of recovery.

24 MR. DUNNIGAN: Okay. Questions? Rebecca?

25 DR. LENT: Did the bluefin group address the issue of the second line of defense -- that there is
26 two alternates, whichever one is higher, and I assume for bluefin, the higher one would not be .5 BMSY,
27 but rather that minimum stock level at which you would need 10 years to get to MSY if you're fishing at F

1 Max or FMSY. Was that addressed in the group?

2 PARTICIPANT: I believe we talked about threshold versus the target, didn't we?

3 DR. LENT: No. This is in terms of the threshold -- the second line of defense is either half
4 BMSY or it is that minimum stock level at which you could get back to MSY within 10 years if you fish
5 at F Max. I would assume that for bluefin, and maybe the scientists can help us out, that would be higher
6 than .5 BMSY. Is it? Joe? Jerry? Is it, Joe? Are you nodding?

7 MR. DUNNIGAN: Do we have a clarification? Joe Powers? You're going to have to come up
8 and be close to the mikes, Joe.

9 DR. POWERS: Yes.

10 DR. LENT: Thank you.

11 MS. POWERS: The answer is yes.

12 DR. LENT: I like that. Okay.

13 PARTICIPANT: (Inaudible).

14 PARTICIPANT: Now you have to get up.

15 PARTICIPANT: What she had asked was -- and we actually -- I mentioned this. I don't know that
16 it was really discussed at that length. But, basically, the threshold would be, according to my understanding
17 of the Magnuson-Stevens Act, one-half biomass at MSY or the biomass at which it can recover within 10
18 years at FMSY, whichever is higher.

19 In the case of bluefin, that latter would be higher.

20 DR. LENT: This is Rebecca. And in the case of swordfish, it would probably also be higher?
21 The 10-year approach?

22 PARTICIPANT: I don't recall. I wasn't in on those discussions. Whoever was in that swordfish
23 group --

24 MR. DUNNIGAN: Steve?

25 DR. TURNER: Steve Turner.

26 MR. DUNNIGAN: Come forward again.

27 DR. TURNER: I cut it down, actually.

1 MR. DUNNIGAN: Rebecca, you want to ask him the question?

2 DR. LENT: Yes. Actually, I think the reason Steve thought that maybe it was higher than half

3 the MSY is because we're currently at .58. And even if we fish now at FMSY, we won't get to FMSY

4 within 10 years. So that is why Steve thought that maybe the 10-year rule would be in the second line of

5 defense threshold, rather than the 0.5. Right, Steve?

6 DR. TURNER: Yes.

7 PARTICIPANT: Everybody but Steve Turner says yes.

8 MR. DUNNIGAN: Let's try to keep focused, though, on bluefin. (Inaudible).

9 PARTICIPANT: Joe, if that is the case, the bluefin recovery is even longer, which could indicate

10 that we're looking at a number even higher than for swordfish. Do you have any feel for how -- is that

11 number going to be potentially .8, .85, .7? Do you have any feel for where that -- the second half -- 10

12 years of FMSY -- where you have to be (inaudible).

13 DR. POWERS: I don't know off the top of my head, and I don't want to really speculate. I mean,

14 my guess is it's -- I'm not even going to speculate at this point. I mean, yes, you're right. The essence of

15 above.

16 MR. DUNNIGAN: Thanks, Joe. We heard a little bit of discussion about taking and negotiating

17 positions to (inaudible). Am I to understand that the strong position that would come forward would be a

18 recovery period as long as it takes, and the only real objective is to stay above replace -- below replacement

19 needs? Is that really the substance of what came out of this?

20 PARTICIPANT: One of the options did, indeed, center on those components. (Inaudible).

21 PARTICIPANT: In 65 years have been qualitatively is out there now is acceptable to the group?

22 PARTICIPANT: Carl, you want to help (inaudible) find where you were in the group?

23 PARTICIPANT: Yes. That was essentially one alternative scenario that ran through to the entire

24 handout table that was not the whole scenario that the whole room painted. A more realistic range of the

25 discussion is on that page where you have the two top things checked. That page is essentially what the

26 gist of the group's discussion has been.

27 PARTICIPANT: And I heard Mark say no time period there would be determined by ICCAT

1 (inaudible).

2 PARTICIPANT: Well, that is one of three alternatives.

3 PARTICIPANT: I (inaudible) understanding, because I don't understand --

4 PARTICIPANT: Ray Bogan.

5 PARTICIPANT: Ray Bogan.

6 MR. BOGAN: Ray Bogan doesn't understand. (Laughter.) Let me speak for Ray. No, I don't
7 understand the way Dave is saying it. There is a recovery period that ICCAT has set. That was a long time
8 period. That is that -- you've told me 65 years, assuming that that is correct. That would be the time
9 period. That is the time frame. I don't think it is just as long as it takes. If it takes 100 years or 150
10 years, ICCAT has a specific goal.

11 PARTICIPANT: (Inaudible).

12 (Pause.)

13 PARTICIPANT: The current assessment and projection goes up 65 years assumes, as you know,
14 that recruitment is not going to increase as the biomass increases, and we're not confident that that is a great
15 assumption. That assessment and those projections also assume that there is no benefit to the West from
16 mixing. So what we're suggesting is that between the two -- between increased recruitment that we hope
17 will occur as a result of the increasing biomass which we have right now.

18 We're on a trajectory, and the imposition for the first time ever of restrictions in the East of
19 Atlantic that would essentially bring those quotas -- those catches -- down and leave millions more fish in
20 the water. And if the exchange rate is as small as some think it is at 1 percent, east or west, that that 65
21 years could turn into 20 years for all we know. It could be less.

22 PARTICIPANT: David Wilmot.

23 MR. WILMOT: I have been talking about 30 years is so far out of sight, it is not worth doing.
24 But I'm confused about the mixing. We saw some projections this morning that were in the 1, 2 percent
25 range, 25,000 metric tons taken out of the East, zero quota in the West, and they crash with the diffusion
26 model. With the overlap model, they were still less optimistic than the model that was used for the
27 assessment in '96. Rich, I'm confused where all these fish coming across are, because they're not in the

1 projections.

2 PARTICIPANT: So am I, Dave. And I asked a very simple question of Dr. (inaudible)'s report.
3 If, you know, without plugging it into tomorrow and all the assumptions that have to go, if you leave all
4 those fish in the water in the East of the Atlantic from compliance with the minimum size and quotas
5 below replacement yield, and you assume that mixing is still taking place, is the West going to get more
6 migrants from the East? And there is an intuitive gut response that says, of course.

7 Now, the model is not showing that and I'm going to leave that to others to explain where the
8 problem is or if it is not a problem, what that is an artifact of. But I'm not going to be held hostage by it
9 either. The reality is if they start saving some fish, which we've been doing for a long time, the West is
10 going to benefit from it. That is what we want to see.

11 PARTICIPANT: Okay, David.

12 MR. WILMOT: I respect your opinion, but I just think this group should recall what we're seeing
13 -- what the scientists put together in terms of projections. Dr. (inaudible) made it clear that when thinking
14 about mixes, it is simply not as simple as the way you're trying to describe it, Rich, and therefore the
15 modeling may be closer to reality.

16 PARTICIPANT: If they would like to jump in, I'd like to hear what some of them have to think,
17 because the projections are astounding, and I always hear this tossed out. Fish are going to be saved in the
18 East. They're going to come to the West and speed recovery. That is not what we saw this morning. It is
19 simply not.

20 PARTICIPANT: Ray Bogan.

21 MR. BOGAN: With regard to that, there are three options here. There is still that 10-year, 20-
22 year option. I mean, you are espousing perhaps somewhere between or perhaps -- and whatever it is -- I
23 think it is provided for in there. That was one of the arguments, so I mean I just don't think based on the
24 debate on mixing right now that we're going to get real far going too far with it. I think it is up there as
25 the first one on the list. There are other ones there.

26 MR. DUNNIGAN: David Wilmot.

27 MR. WILMOT: What caught my attention more was the below replacement yield. Where we are

1 now, I would have liked to have seen more of the discussion of fishing mortality. The reality is we're only
2 going to rebuild if mortality is reduced. Talking about a low replacement yield doesn't give me a lot of
3 confidence we're going to reach mortality levels that will stimulate rebuilding.

4 PARTICIPANT: Mark. Ray Bogan.

5 MR. BOGAN: If we're talking -- if we're separating the two stocks or anything and just talking
6 about the West, I think we're stimulating that growth because we do see a number trajectory. It may not be
7 at a rate which all of us are comfortable with. You may not be comfortable with that rate, but there is an
8 upward trajectory now. In that regard, I think we've addressed that. We had three options. Ultimately,
9 NMFS is going to address that.

10 What was brought into the discussion, however, is, one would argue, the realization that without
11 considering what is taking place over there, assuming any minor amount of mixing, that if we can (pause)
12 extend, then we're going to have increase. But that sticks with the third option. There is still the other two
13 options, which I think were developing more.

14 MR. DUNNIGAN: Okay. We're still talking on bluefin. Pete Jensen.

15 MR. JENSEN: I have a question. Would you go over again that 20 years there where the arrow is
16 no longer viable fishery means?

17 PARTICIPANT: Sure. As we ran scenarios different from the ones being discussed by
18 (inaudible), we ran some 10, 20 -- 10, 20 yield ones, and they were just some comments, perhaps Nelson,
19 once you had (inaudible) an expert on tenure (inaudible) no catch which equated into (inaudible). A 20-year
20 time frame --

21 PARTICIPANT: The 20 years includes a 500 (inaudible).

22 PARTICIPANT: Right. Precisely.

23 PARTICIPANT: And, again, I don't know (inaudible).

24 MR. DUNNIGAN: Other comments and questions -- about bluefin?

25 PARTICIPANT: Russell?

26 MR. HUDSON: (Inaudible) the East or West (inaudible) any help at all?

27 PARTICIPANT: Not so far.

1 MR. DUNNIGAN: Ray Bogan.

2 MR. BOGAN: My answer -- to answer better -- John is not here, so I'm going to say, so far, no.

3 The answer is not really.

4 MR. DEAN: That is not the answer. Let me -- John Dean. That is ongoing work. The status of

5 the work is that the mechanism -- the genetic markers exist and it is probably going to be two or three

6 years of rigorous sampling and analysis. It is not something you can do overnight, but the technology is

7 very promising. Technology exists. What we've got is very promising. We just have to sort our way

8 through it.

9 PARTICIPANT: (Inaudible)? Are you saying there is the possibility to be able to see if the

10 (inaudible)?

11 MR. DEAN: That is a separate question, and (inaudible). The first question is that -- a

12 combination, I would argue -- a combination of the technologies we have today of the archival tag work,

13 the genetic work, which includes (inaudible) DNA and (inaudible) DNA. And the micro-constituents in the

14 (inaudible) -- a combination of those, which is going to take two to three years to bring it all together, will

15 aid us in the question of is there a separate East or Western stock?

16 Not it is a separate question than being able to go into the 45 degree line and take samples and

17 answer the mixing question in the mixed fishery. That is a very -- that is -- I am told that is a very, very

18 difficult analysis to do.

19 PARTICIPANT: (Inaudible) I heard about. That is something that could be enhanced a little bit

20 more and helped along.

21 PARTICIPANT: That is somebody else's stew to do that one.

22 PARTICIPANT: Ray Bogan.

23 MR. BOGAN: Ray Bogan would say that now the two-year period is -- until that two or three-

24 year period, you don't have (inaudible) DNA. But it raises a whole lot of points that we try to get into

25 from a biological standpoint that John raised and that I raised, which is try to enhance the biological

26 backbone of the scientific part of this thing of the whole assessment process.

27 MR. DUNNIGAN: Bluefin tuna. Questions? Comments -- on the work of the breakout crew?

1 Are we ready to move on? Okay. Let's do it. Mark, thank you very much.

2 MARK: Thank you.

3 MR. DUNNIGAN: Thanks to the group. The last presentation we have this afternoon -- didn't
4 save them for last for any particular reason, except that none of my bosses were in that group -- a
5 presentation on behalf of sharks is going to be made by Sonja Fordham.

6 MS. FORDHAM: How about now? Is that better? And now for something completely different.
7 (Laughter.) I'm afraid to say that the shark group was a little more unruly and we didn't get very far on our
8 worksheets. But we had some free-flowing discussion, and I can report on that. We started out with a
9 presentation by Dr. Ellen Pikitch. And she started out by showing us going through the production model
10 that was used in the shark evaluation workshop report and talked about the different ways of determining are
11 the intrinsic rate of increase deriving it from the production model or using demographic information.

12 She also explained that there were significant data difficulties with fish like sharks that are on a
13 one-way trip. We don't have data on how they recover. We discussed whether the value of K used in the
14 SEW report was realistic, and I should say that I hear there is a good chance Ellen will go through her
15 models and presentation during the public comment period, so I urge you all to listen to that because she'll
16 do a much better job than I will.

17 She did go through -- ran a number of projections using a variety of values for R and for K,
18 carrying capacity. And basically her outcomes were much bleaker than those in this shark evaluation
19 workshop report. For example, using an outer value of .12, which is the highest value in the SEW report
20 that is derived through demographic analysis, the status quo which is, including the recent 50 percent cut for
21 the commercial quota, leads to further stock decline.

22 So then we had a lively discussion about why, in the SEW production model, came up with an R
23 value that was .26 -- much higher than those derived through demographic analysis. And we talked about
24 how that was because the model was trying to account for expansion of the fishery and the fishery being
25 able to have greater access to the sharks. And we also discussed -- in that vein, we discussed the open
26 versus closed models and really didn't come to much consensus there.

27 I think there was some general consensus that it is likely best to use the best catch and effort data

1 that we have from the catch and data effort to look backwards to see what has happened, but then when we
2 do our projections, probably the demographic analysis is best to make these projections into recovery and
3 rebuilding.

4 There were some specifics on controls and using the precautionary approach that were suggested by
5 Ellen, because she has looked at -- she has compared sharks to what has been done for whales, because of
6 the similarity between sharks and whales from a biological standpoint. And that the International Whaling
7 Commission has sort of set precedent for using the precautionary approach and sort of started to do it before
8 it was cool.

9 So she explained to us that they built in precaution into their models at two separate points, and
10 they've done this by -- reached this through scientific consensus. That they use a .6 of the carrying capacity
11 is the threshold of BMSY or 60 percent of the virgin biomass. And they also target 90 percent of MSY to
12 also build in some precaution there. So these were -- these values were suggested because of the
13 similarities between sharks and whales, but we did not reach consensus on this matter.

14 Then we went into a discussion about the different models and the uncertainty in the data, how the
15 different charts within a large coastal group -- how they're grouped and how their biology differs and whether
16 those should be broken out. The large coastal sharks are -- have been declared over-fished, yet they're 22
17 species within that grouping, so that was problematic and we talked about how to best select R and which -
18 - that we can't use this open population model forever, but it does have some merit.

19 There was concern on both sides that if we choose the wrong model or the wrong values, we could
20 cause more serious depletion to the sharks or more unnecessary further impact on the negative impact on
21 the shark fishing industry. And we tried to go to the work sheet. We didn't get very far. We discussed how
22 -- that since the guidelines weren't out -- that we were going to have to look at the possibility of a 10-year
23 rebuilding period for sharks, whether it was likely or not, and felt that we had some flexibility at looking at
24 our different reference points and goals.

25 Then we got a little out of control here. We talked about how we would have some flexibility in
26 the control walls, and that would be a real policy decision. And we sort of went back and forth talking
27 about how we could maybe extend things into 20 or 30 years, but then we had to keep -- we had to keep in

1 mind the deadlines in the Magnuson Act, both near-term and for rebuilding.

2 I think everybody agreed that we need to build in flexibility to incorporate the improvements in the
3 data which we hope are going to be forthcoming. That was pretty much agreed upon. And then the more
4 we argued about the problems with the data, we came back to the fact that we had some short-term tasks to
5 take care of very quickly because of the SFA requirements.

6 We started to look at scenarios of 10-year rebuilding and whether or not we were actually
7 rebuilding right now, and then look at a longer rebuilding period that would be easier on the industry. This
8 conversation didn't go very far, but I think we had pretty much consensus that we needed to have set bench
9 marks in order to be able to track the rebuilding, even though there was acknowledgement that it is very
10 difficult to determine whether the sharks are actually recovering because of their life history characteristics.

11 We also had pretty much agreement that we needed to reanalyze what we were doing very often to
12 account for all the risks and uncertainty that is associated with the data. So we looked at one of the most
13 optimistic scenarios that is part of what is considered the best scientific available -- science available now --
14 and that there are reasonable odds that the shark stock of large coastal sharks will increase by 1999. And
15 this is if management measures are implemented effectively.

16 So this led to a discussion about how we have a better handle on the commercial catch than the
17 recreational catch, and it seems that the commercial catch has been, of course, reduced quite significantly,
18 although their quotas have been exceeded and there was some real concern about that. But that recreational
19 catches, at least in terms of numbers of sharks, had not been reduced since 1995.

20 There was a lot of concern around the table about overages on both commercial and recreational
21 hearts. There were some comments that if you take the average between (inaudible). That is when we sort
22 of talked about an average. We also talked about how that that would not be weighted, and there were
23 arguments to be risk averse, again some for the sharks, some for the industry. So we didn't have much
24 consensus there.

25 And we emphasized that we have not necessarily -- we haven't set a preferred alternative yet, and
26 that these issues were difficult to weight. And, again, we talked about, given all the noise in the data, it is
27 going to be very difficult to detect whether or not we are rebuilding, at least for a while. There are some

1 people that wanted to look at alternative measures to boost rebuilding, such as closed areas and minimum
2 sizes. And there is also concern that the different user groups share the burden for recovery in an equitable
3 manner.

4 Again, when we started to get carried away, we had some people saying this is the data we have,
5 and we have to move on with it. Again, a lot of concern about the overages in both groups and whether or
6 not there was going to be credit given for the area closures that had already taken place to protect juveniles.

7 There was some -- a recommendation that HMS form a scientific over-fishing definition review
8 panel like we have in New England and the Mid-Atlantic to provide the AP with some possible control
9 laws and different scenarios over different periods of time. But we did not get an answer to that yet. Don't
10 know if that is possible.

11 And there were people that were concerned about discards and a number of other issues, but we did
12 not have time for that or any analogies to Princess Diana. So there are some people in the group that are
13 interested in meeting again to finish filling out our work sheet.

14 MR. DUNNIGAN: Members of the breakout group for sharks, is that what you talked about?
15 Bob Spaeth?

16 MR. SPAETH: Yes. And I think we stopped strictly with the scientific things and the point here
17 -- I know we were going to bring up some other things. It was just the time, but Carl had brought up
18 earlier this morning as fleet reduction programs and possible subsidies to reduce the fleet sizes. Is that -- on
19 a stock rebuilding plan. Is this the proper place? I didn't look at the agenda where else that would come in.

20 MR. DUNNIGAN: Well, I think that in terms of giving advice and raising issues, this is the
21 time. And telling the National Marine Fisher Service that you'd like them to include these as elements of
22 what they draft next. This is the time to do that. I don't think we want now to get into an extensive
23 discussion of subsidies and buy outs and investment and all that.

24 MR. SPAETH: Yes, but I wanted to put it in there.

25 MR. DUNNIGAN: At least we're getting it on the table. I think this is the stage in the process
26 where it should be. I'm sorry?

27 MR. SPAETH: Also a limited entry program?

1 MR. DUNNIGAN: Right.

2 MR. SPAETH: And Sonja did a fairly good job of reporting that. Thank you.

3 MR. DUNNIGAN: Russ?

4 MR. HUDSON: Let's see. That's a direct (inaudible). On the overruns for the commercial quota,
5 I believe that took place according to NMFS data -- '93, '94, '95 -- but in '96 we had an under-ride. We
6 didn't need the quota because they sat us down early. And with the recreationals, according to Steve
7 Bransetter (phonetic), every year of management has been an overrun of a factor of almost four for what
8 their allocation on quota was.

9 And then, most likely, we had estimated a model according to Jerry Scott and we were discussing
10 it. When you took the 50 percent chop that we just experienced last year and applied it to the most likely
11 good estimated model, which (inaudible) the shark if, indeed, in first place before we added in the
12 demographics model and the production model in '96. That model, with the '86 through '95 time series --

13 (End Tape 7, Side A.)

14 MR. HUDSON: Without a discard allocation can be caught by 14 boats using one NMFS shrimp
15 limit per week. Our average loads before management traditionally landed between 100 and 200,000 pounds
16 from the small boats per year, and for the bigger boats some of them would be up to half a million pounds
17 per year. And I indicated that in the '86 through '93 data, particularly from '87 on, most of those years our
18 mortality commercially large coastal, was in the neighborhood of 20 to 30 million, where NMFS's peak
19 year, '89, was only 11 million.

20 So I feel that it sort of skews the reliability of the modeling. And yet there has been this let's
21 hurry up and do something in '94, and I brought it up about how the doubling of the sandbars age to 30
22 years maturity, and then that finally got shelved by Jack Musik (phonetic) in '96 to go back 15. We'll
23 suggest a (inaudible) of a 50 percent cut in '94. Two years later, in '96, we go with another 50 percent cut,
24 and these are -- we don't want to see another 50 percent cut elevated on us in '98 at the workshop that is
25 scheduled for July. I believe by August you have another AP meeting. We may have input on that shark
26 evaluation workshop but then that will help us with the rebuilding scheme.

27 But right now, I'd say well enough -- leave well enough alone and let's just go ahead and

1 concentrate on getting Brad Brown or somebody -- just observers on these boats -- and get the limited access
2 in place and go with it.

3 MR. DUNNIGAN: Thank you. Other comments from members of the working group? (Pause.)

4 PARTICIPANT: I'd like to comment but you do need to have an extension of this break out for
5 all the AP members. It is absolutely necessary that we do establish what our target years are going to be,
6 what we're going to have the thresholds, where we're going to have the bench marks. It seems at every
7 opportunity that sharks gets in the discussion, it is just another opportunity to go ahead and cut quota and
8 continue to cause hardships for industry and possibly not do other things that need to be done.

9 North (inaudible) and other influences have also indicated that alternative measures are needed and if
10 we can have time frames for target at MSY for everyone to achieve, that could be helpful to allow additional
11 time to look at alternative measures which can be quite useful. We always seem to want to go ahead and
12 look at quota, and eventually there is not going to be any point in that because we will -- it is severely
13 limping.

14 PARTICIPANT: It's there now.

15 PARTICIPANT: And pressures always end up selling to another long-life fishery. And so I
16 encouraged this break-out through to definitely this evening, if possible, to record a public comment.

17 MR. DUNNIGAN: Okay. (Pause.)

18 MR. SPAETH: Bob Spaeth. One thing that we didn't do up there, and I wanted to mention was
19 that we only talked about quotas and where we might want to set an MSY. But, you know, we also have
20 other options that should be put on the board -- size limits, time area closures, other management measures
21 just other than quota that could relate to it, and I wanted to bring that up for the record.

22 MR. DUNNIGAN: Other members of the subgroup? Ellen? But you're going to have to come
23 all the way up towards the table. Yes. Yes.

24 MS. PIKITCH: I got my exercise for the day yesterday. I had a lot of (inaudible) lifting, so today
25 it's walk. There were -- I think that it would be a good idea for the group to reconvene if possible during
26 this session, because there were a lot of specific suggestions. There wasn't consensus, but there were a lot
27 of specific suggestions for alternatives, and I'm thinking, for example, in terms of a target, we spent a lot

1 of time talking about the idea of setting a target fishing mortality rate based on the demographic data of an
2 R divided by 2. So there was quite a bit of discussion of that. That was one possibility.

3 Then the possibility you mentioned, that I suggested, that we look at what the International
4 Whaling Commission did as a precedent that sharks are probably more similar to whales than they are to
5 other fish, looking at some alternatives within that realm. So really that is it. There was a lot of detail
6 that isn't captured there, but I do think Sonja did a great job of trying to distill it down to something
7 coherent.

8 MR. DUNNIGAN: Other members of the subgroup? (Pause.)

9 MR. SAMPSON: Yes. Mark Sampson. It was alluded that the recreational catch of sharks, or
10 the recreational fisherman has not shared the expense and shared the hits, so to speak, that the commercial
11 catch has -- commercial fisherman has -- especially last year when the quotas were cut and that simply, of
12 course, is not the case. Because I'd like to remind them that the recreational -- the recreational case was also
13 cut by 50 percent. Okay? And last year, yes. And we also only, I think, that our quota is only about 20
14 percent of what the commercial quota is. So I think that we have shared quite a proportionate amount of
15 that.

16 MR. DUNNIGAN: Other questions? (Pause.)

17 PARTICIPANT: The quota allocation as far as based on rate -- it might be like you're saying 20
18 percent. But when you talk about numbers of animals, then you're getting back to more like a 50/50 share.
19 And when you're talking about numbers of animals, the recreational mostly spend their time -- 54 percent
20 of their time in state waters catching mostly juvenile animals. And that is one of the animals we have to
21 protect, whether we use alternatives like de-hooking devices or whatever -- something to enhance the fact
22 that those animals do not have a chance to be able to produce offspring and need to make it several years
23 down the road. So that pressure needs to be taken off those animals from anybody in state waters and just
24 outside state waters.

25 Personally, as far as our directed vessels go, we direct towards adult animals, mostly sand barge and
26 black tips, and those animals are generally adult in most cases in most areas, except for the Mid-Atlantic,
27 which happens to be a big grounds for a lot of juvenile sandbars. And that is one of the areas that has

1 considered, I guess, on a time closure for some of that stuff.

2 MR. DUNNIGAN: Other comments from the members of the working group? Okay. Let's open
3 it up to the full advisory panel. Questions or comments on sharks? David Wilmot?

4 MR. WILMOT: Rebecca and Rusty mentioned an SEW. Is an SEW scheduled?

5 DR. LENT: I don't have an answer for you, David.

6 MR. WILMOT: Rusty? Can I ask Rusty that?

7 MR. HUDSON: Rusty doesn't want to reveal his source, but NMFS (inaudible) say that there is a
8 plan for something in July.

9 MR. WILMOT: When you're told Rebecca, would you let us know?

10 DR. LENT: Thank you, David. (Laughter.)

11 PARTICIPANT: Did the group talk about the pumping grounds closure. I think as far as a
12 number of states of the ASMFC go, there is a will and an intent to close (inaudible) areas. Has anybody
13 evaluated that, or is it just another conservation principle that we're all being guided by here?

14 MR. DUNNIGAN: Anybody? Has that been evaluated or quantified at all -- the impact?

15 PARTICIPANT: There has been an opportunity for an individual that was on the observed
16 program to do some personal ad hoc work that went out into our (inaudible) fishery and sampled
17 approximately 100 sets. The data has not been analyzed. He is probably working with us trying to
18 extrapolate some of those catches and some landings data for that same period. But per day vessels were
19 catching approximately 100 fish, and there is 20 percent mortalities, which is pretty low compared to other
20 fisheries. We have the opportunity where we are for the water to be somewhat cold to provide for pretty
21 good survivability and the sets are short in that particular fishery.

22 That fishery uses a slightly larger mesh size than other (inaudible) fisheries, and it hasn't been
23 (inaudible) to take three and four-year olds fairly well.

24 PARTICIPANT: Do you believe that you'll be able to take that data and make some judgment on
25 the impact on the 10-year rebuilding schedule or the currently 10-year rebuilding schedule. (Pause.)

26 PARTICIPANT: We have to see if we can. That is a possibility. Yes.

27 PARTICIPANT: (Inaudible). No one has actually quantified what the effect would be of closing

1 (inaudible) nursery areas.

2 PARTICIPANT: The one thing that we can tell you is that the most optimistic demographic
3 models require survivorships -- the first year class is one, two, three -- and they need a 95 percent branch.
4 And that is probably unrealistic, but that indicates is that where we boost the survivorship up, we're
5 (inaudible) records.

6 PARTICIPANT: Where we do think survival is now?

7 PARTICIPANT: We don't really know. That's one of the (inaudible) to the paragraph and
8 analysis. If you look at the most pessimistic situation that we're talking are values and (inaudible) .06 or
9 lower. So this is why we have a lot of problems with the NMFS's are .26 and why it is felt qualitatively
10 that closure of public boating areas, that would include going with (inaudible) not directed towards sharks.

11 Closure of those areas would help speed recovery because the -- to try to match those most
12 optimistic targets to stay right on track. Thank you.

13 MR. DUNNIGAN: Carol?

14 MS. MISTRAGUISE: Hi. Carol Mistraguisse (phonetic). You were asking about nursery ground
15 studies. Besides working at HMS, I'm also doing a graduate thesis where I am looking at a demographic
16 model assessing the efficacy of nursery ground closures, size limits, on the sandbar shark and how they
17 affect management. I could throw something together for tonight's comment period if you want.
18 Basically, what I'm finding is that if I take a very extreme model, where every single neonate survives --
19 you know, I'm talking no natural mortality, no fishing mortality, and neonates are the very young of the
20 year fish -- that you still have the declining population that you need to protect the juveniles and some
21 adults. Those are the groups you need to consider -- the premature sharks. So, yes, these types of models
22 are being considered. They are being looked at by people outside of the NMFS.

23 PARTICIPANT: Pete Jensen?

24 MR. JENSEN: Are you saying that closure of state areas would not protect juveniles?

25 MS. MISTRAGUISE: I was just saying from the model standpoint, I just decided just to look at
26 neonates. What happens if you save them? If you close a nursery ground, of course, you're going to be
27 protecting juveniles and some of the sub-adults that might come in because juveniles are also going in.

1 MR. DUNNIGAN: Margo.

2 PARTICIPANT: Margo Schulze. I just wanted to mention again that state areas are not under our
3 authority. And as much as we would like to be able to close them if necessary, it is a management
4 recommendation that we can make. There has been some progress, both the Mid-Atlantic Council and New
5 England Fishery Management Council have passed resolutions. The Mid-Atlantic has actually sent out
6 letters to the states requesting them to close their waters and adopt federal regulation.

7 But at this point, we do not have that authority, so it is part of the program. It is something that
8 should be considered, but it needs to be remembered that we cannot do that by ourselves.

9 MR. JENSEN: We understand that.

10 MR. DUNNIGAN: Pete Jensen.

11 MR. JENSEN: We understand that is not the constitutional design, but I think there is a will and
12 an intent on all of the states that I'm aware of to do that. And so I was wondering if that will and intent is
13 there, as I believe, that it ought to be evaluated. Because it is going to have a real impact on what happens.

14 MR. DUNNIGAN: Russ?

15 MR. HUDSON: Russ Hudson. In the Mid-Atlantic area, Stuart Springer (phonetic), I believe in
16 his natural history of the sandbar, 1968, pointed out that if you went out to say about 15 miles off the
17 beach, which I believe from three miles on out (inaudible) is federal waters, that you would be able to do a
18 lot in the time area closure to protect those younger of the sandbars -- just in sandbars. But as you get
19 further into the south, like Cape Canavral, the area tapers on it so that you're virtually almost in state
20 waters where most of those little baby sandbars (inaudible) by the time you get to Cape Canavral, Florida.

21 MR. DUNNIGAN: Jim.

22 MR. FRANCESCONI: Jim Francesconi. In offer of Pete's question to Carol as far as the VMA
23 still not providing for immediately growth in the stock size, if you look at Steve Bransetter's (phonetic)
24 work about North Carolina specifically, because we were fortunate to be able to get some data on that work,
25 it showed that inside of 10 fathoms approaching 90 percent, sometimes excess of sandbars were immature.
26 And that was just a commercial long-line fishery. So our particular prohibition on commercial -- here an
27 intention of charging us state order -- is that also protected the premature or immature -- the immature and

1 premature sharks that Carol said had those and with the (inaudible) survivability it is beneficial.

2 MR. DUNNIGAN: I have Bob Hueter and then Alan Weiss and then Jim Donofrio.

3 MR. HUETER: I just want to clarify my point. Unless the states think that this is a sort of a
4 main sort of a move, closing nursery areas and protecting the pups will help speed recovery. There is no
5 question about that. The question is how much of an effect you'll have. And there is -- to be honest, there
6 is scientific debate about this because there are actually examples in fisheries and other places in Australia
7 and parts of Mexico where they really focus on the neonates and the one and two-year olds. But they leave
8 the adults alone. And those fisheries have continued over many years. We're -- basically, we're scratching
9 our heads and saying, oh, this could happen. We haven't sorted this out.

10 So I think the bottom line here is that the information shows there will be a positive effect on
11 population if you protect the pups. But there may not be as much as anticipated, and certainly is not the
12 answer to rebuilding tarnished stock.

13 MR. DUNNIGAN: Alan, Jim, Russell.

14 MR. WEISS: Alan Weiss. I just wanted to reiterate the position recently taken by the Mid-
15 Atlantic Council and let people know what the council has done. Recently, the council sent a letter -- it
16 sent a lot of letters -- a lot of people around this table have received them. Letters went out to the Atlantic
17 states marine Fisheries Commission, the Gulf States Marine Fisheries Commission, and each coastal state
18 from Maine to Texas imploring them to close State waters if they had not already done so to all directed
19 fishing for large coastal sharks.

20 And the reason was two-fold. One is what has been discussed so far in the last several minutes,
21 which is to protect popping the nursery areas, which are mainly in state waters. The other reason is that
22 when Rebecca put out the final report of the landings for the last quota period, she indicated that we
23 overshot the quota -- the commercial quota -- for large coastal sharks. And that the reason for that was that
24 a large number were taken from state waters following the federal closure.

25 So the reason for the council's recommendation was also to compliment and enhance the
26 effectiveness of the federal regulations, in particularly, the quota.

27 MR. DUNNIGAN: Thank you. Yes?

1 MR. DONOFRIO: Jim Donofrio. Regarding Mark Sampson's report to the record before, I'd like
2 some clarification also from Rusty. I think we were talking about two different fisheries here. I agree
3 wholeheartedly with Mark. The recreational industry prior to -- I would say prior to the directed long-life
4 history of the finning operations, we had viable tournament industry along the coasts from the Mid-Atlantic
5 to Delmar right on up to the Mauntawk (phonetic) region even south a block. Boats blow off on the
6 vineyard. And these tournaments would run from May right through July -- even into August.

7 That has collapsed. That fishery has collapsed. That fishery has collapsed. The fishery took place
8 in federal waters. Now I agree with Mark on that. Rusty had talked about us not maybe doing our share to
9 -- but I think you were mixing coastal fisheries with -- so can you clarify? Because you were talking about
10 two different fisheries there? Am I correct, Mark? You were talking about the offshore fishery at the time,
11 and I now when Rusty went on the record, he was talking about a (inaudible).

12 MR. SAMPSON: Mark Sampson. Yes. I was referring primarily to fishing in the offshore
13 fishery, certainly, and Rusty, I guess, you're pertaining primarily to the fishery down in this area primarily.

14 PARTICIPANT: (Inaudible). The directory of the fishery I was referring to is the one that helps
15 out bring into existence during the mid to late 1980's. And it existed predominantly from about the
16 Virginia quarter all the way around to Texas. And it just was about at the peak, anywhere between 130 and
17 225 vessels directing that we're landing between 100,000 and a half a million pounds at least per year.

18 Currently, we can have 14 boats catch 200,000 pound per year. But we've got 150 boats that,
19 you know, are mostly landing the quota (inaudible) and the recent lawsuit, but they got two thousand, some
20 odd (inaudible), 1,000 people with history already built. And I did about the tournaments and stuff, and the
21 personal communication Jack usually had with me -- he has sort of differed his position from the 1986
22 Pamela Shark experts where he said he saw no difference in CPU, no difference in size or specie kind of his
23 catch. Just based on a gut instinct about it all.

24 Just looking back from '73 through '86. And he told me in this e-mail communication that this
25 revelation that appeared around 1994, that there was a 50 to 75 percent drop in CPUE's between 1972 and
26 1986 before the real advent of the directed fishery was mostly attributable to the tournament and recreational
27 and the foreign fishing police for those sharks.

1 Now it is a lot of mixed signals, and I do believe that, you know, you're going to see an increased
2 recruitment of large sharks of all species coming into the waters, because they are highly migratory and an
3 open population. And the opportunity -- because we have been able to reduce the mortality so
4 tremendously since 1993 on a drastic level, we'll probably increase your opportunity for tournaments and
5 stuff in the future.

6 And, yes, granted at one fish per boat (inaudible) or large coastally, it really restricts the boat. I
7 had to go to bat for my relatives on their head boat, because of the fact that they wanted to restrict the head
8 boats to the same thing. And I got them to at least put a 5 atlantic shark nose per person bidding there, and
9 their -- well, I mean, it's down to two or something. I forget exactly what it is, but it had to be heard
10 (inaudible) not two fish per boat. Because right now, you've got a huge amount of the atlantic shark nose
11 and other fast growth animals appearing on the scene out here. And that bodes well for the future. I say
12 that we are rebuilding our stocks here. On our own, without any help from the Mexicans, which is the
13 seventh largest shark producing country in the world for the last 15 years.

14 PARTICIPANT: So they're gaining now?

15 PARTICIPANT: They're probably up to a third.

16 PARTICIPANT: By tremendous second place.

17 PARTICIPANT: Oh, I have one other.

18 MR. DUNNIGAN: I'm sorry.

19 PARTICIPANT: You know, my hand was raised earlier but the following comment was made by
20 NMFS on page 5 of the 1996 shark evaluation workshop, and they could not see a (inaudible) or doubling
21 could not be expected to occur for about 7 or 14 years. And they do not expect to be able to protect year-to-
22 year changes in abundance.

23 So I would say that, you know, we've probably done a lot, but we need to be able to tighten it up
24 a little bit, look at the biological concerns, be species specific. I'd rather be bale to make all the user
25 groups happy, because there is a lot of people involved here. And that is why I keep pushing for limited
26 access for almost two years to try, not necessarily defend the fleet to the quota, because the quota is too
27 small. But the reality is you can't have 150 or 1000 or 2000 people chasing something 14 boats can

1 handle. It just doesn't make sense. It is ludicrous.

2 MR. DUNNIGAN: Mark and then Bobby?

3 MR. SAMPSON: Okay. I'm not sure how we ended up on there from there, originally starting
4 with me. I'm not sure how we got there, but what I would like to do is reiterate that -- and maintain what I
5 said before -- that the recreational fisherman has done his part and we have also accepted the cuts in our
6 limits and we are doing our part in the shark fishery. Okay. So I'm just maintaining what I said before. If
7 there is a little bit of a cross-up originally, or some miscommunication concerning the in-shore versus the
8 off-shore shark fishery, that is another topic. Again, I just want to say that we are doing our part.

9 MR. DUNNIGAN: Bob and then -- well, let's go with Bob first. Then I'll come back.

10 MR. SPAETH: I'd like to raise back up the quota. Bob Spaeth. I'd like to bring back up the
11 commercial fishing or quota. It has been stated, but as I understand it, this quota overrun -- and I have
12 personal knowledge of Louisiana. There is continually fishing all year legally in that state, catching
13 purportedly -- and I use the word purportedly -- fish from state waters.

14 Now you can believe that if you want to, but that how does that become an overrun on the
15 commercial industry, almost like a black mark on our record, when it was legally caught. And it isn't
16 federal waters and it shouldn't be under the federal quota.

17 MR. HUDSON: Russ Hudson. We're not speaking about the recreational scenario that Steve
18 Bransetter had gave to me. When they raised the quota in '92 based on the new information so that by '93
19 we wound up -- I think they were setting recreational at two, but it didn't go into place, and then four, so
20 they were able to have that larger amount of animals. But he was able to go and figure for the years '94,
21 '95, and '96 that the recreational base and the number of participants and the average catches etcetera had
22 exceeded their allocation quota by weight -- not by numbers of animals -- but I guess by numbers of
23 animals also -- by a factor of three or four times.

24 By the time we took the 50 percent cut on our quota, the recreational (inaudible) on their
25 (inaudible) limits and I'm sure it is tightening up a little bit, but it is real hard to guess because the survey
26 stuff for the recreational is not as concrete as the commercial when we're submitting log books and having
27 to use sampling out there and playing detectives on recreation.

1 MR. DUNNIGAN: Alan and then Sonja.

2 MR. WEISS: Alan Weiss. I just wanted to assure Bob, since I'm the one that brought up the
3 overrun of the commercial quota, that at least from my perspective, it is not the job of the shark fisherman
4 to monitor or stay within a coast-wide quota. It is the job of the people managing the fisher to see that the
5 quota is not exceeded. So to the extent that that happens sometimes is not the fault of the fisherman. It is
6 the fault of the fishery's management system.

7 And also I'd like to add one other thing that was in the Mid-Atlantic Council's position relative to
8 this. The Council also recommended that the federal government close any nursery or pupping areas that
9 can be identified in federal waters to all directed large coastal shark fishing as well.

10 MR. DUNNIGAN: Sonja.

11 MS. FORDHAM: Sonja Fordham. I wanted to follow up on Alan's earlier point about the
12 Council's recommendation. When that same motion was taken to the New England Fishery Management
13 Council and they passed it without opposition, so they'll be sending out their letters. It didn't do so well in
14 the Gulf, but we're still trying with the Gulf Council.

15 But the South Atlantic Council has, as I understand it, was reluctant to go that far but did express
16 a willingness to close specific pupping grounds if they were delineated as such as not close all of the state
17 waters. And that's why yesterday I urged that if NMFS is part of the EFH process is delineating these
18 areas, that they get that information to the South Atlantic Council and the ASMFC and the Gulf
19 Commission, but particularly the ASMFC's South Atlantic ward, which I think is coordinating that work.

20 PARTICIPANT: If we're going to (inaudible) for the same shark authority either tonight or in the
21 morning. I don't know what the final schedule is on it. Does that mean we're going to have further
22 questions and answers afterwards sometime tomorrow?

23 MR. DUNNIGAN: We'll talk about that in a minute.

24 PARTICIPANT: Okay.

25 MR. DUNNIGAN: Okay. Yes, sir. In the audience here. Name?

26 MR. BURGESS: Yes, George Burgess. I wanted to reiterate a little bit of the data that we found
27 in the commercial shark fishery observer program relative to juvenile fishes. The in-shore area of between

1 10 and 15 fathoms and shallower is a very significant area for juvenile sharks in the North Carolina area,
2 particularly sandbars. You go to the East Coast of Florida, particularly, black fin sharks.

3 The key factor involved with these areas is that as quota gradually is being sold off, if you get to
4 the rear end of a commercial fish, you can see that there is more and more temptation for commercial fishers
5 to visit and to float this area to do their fishing. And what that amounts to then is to fill their trip limits.
6 They're then fishing much smaller class individuals to get the same poundage. In other words, the
7 mortality in many cases is twice what it would normal be because of the areas that are most closely found
8 towards the (inaudible).

9 For the last two years our program, I believe, suggested certain area closures that would
10 specifically eliminate some of these situations and work to the benefit of the sharks. And in addition to
11 that, certain length restrictions on key species of most important in the sandbar, we could also help to
12 eliminate some of this mortality.

13 MR. DUNNIGAN: Thank you. Mark Sampson.

14 MR. SAMPSON: I have a question. What size sandbar shark makes up the predominant catch of
15 the commercial fishery?

16 MR. BURGESS: That is dependent on area. In North Carolina --

17 MR. SAMPSON: North Carolina.

18 MR. BURGESS: There are smaller fishes. If you go to the East Coast of Florida, they become
19 larger, and in the Gulf Florida waters, they're larger adults.

20 MR. SAMPSON: Okay. But in North Carolina, of the juvenile adolescent and sub-adults and
21 adults, which of those fish make up the predominant catch?

22 MR. BURGESS: There is different distribution problems involved. The (inaudible) waters have
23 smaller fishes in general. And if you go into deeper water, you tend to get deep, larger individuals. Certain
24 times of the year, of course, you get pregnant females that come right up along the coastline, so it is not an
25 easy question to answer. It is a seasonal and depth distribution difference.

26 MR. SAMPSON: Thank you.

27 MR. DUNNIGAN: Thank you, George. Jim?

1 MR. FRANCESCONI: Jim Francesconi. I'd like to offer a clarification to this man's comment.
2 That is why North Carolina really put that closure in effect. After seeing the data that came out of the
3 observer program. It was so apparent that something needed to be done. Now, one thing that -- there were
4 some trips -- a particular captain allowed us to go on their vessel.

5 There were some trips that he made inside state waters, which is atypical of the whole plea.
6 However, it did indicate the predominance of young fish in this area. But an additional advantage to closing
7 state waters is that the pupping sharks that do enter into near shore waters comes from these sandbars.
8 There is a good chance that they only entered a fishery during this period of time in their life. And so
9 they're closing the state waters is also an effective way to not only protect juveniles and immature fish that
10 used our state waters as a throughway between over wintering and summering grounds, but also the adults
11 that are pupping during the pupping season of spring.

12 MR. DUNNIGAN: Okay. I think there is -- yes, sir. Could you -- you have to come closer to
13 the table here so we can get you on tape.

14 MR. BUSEY: My name is Jim Busey (phonetic) from Seafood Atlantic on the East Coast. I
15 would like to ask Mr. Burgess what species these pups that he is referring to and what areas are these pups
16 in -- these pupping grounds -- that these fisherman, apparently, according to what he just said, as the season
17 is winding down, are going chasing these areas that are closer to the docks and taking smaller fish. I would
18 to ask Mr. Burgess where these places are? (Inaudible) certain fishers, I'm not going to give names out, in
19 this quorum that aren't in small coastals as a matter of force, and during certain times of the year, we'll
20 move their fishing inside towards the small coastal juvenile large coast because it is more profitable to do
21 so.

22 MR. BURGESS: So you're referring to small coastals now?

23 MR. BUSEY: Both.

24 MR. BURGESS: You're saying that these individuals are going out because the season is closing
25 down or going closer to the -- trying to find places closer to the docks to catch pups.

26 MR. BUSEY: They make their 4,000 pound trip by going in close and getting a bunch of small
27 ones and being able to race back to shore so they can go back out to sea and (inaudible).

1 MR. DUNNIGAN: For the record, I think Mr. Burgess is completely wrong on what he is
2 saying. I see no evidence of any pups being caught towards the end of the season. I see all large shark.

3 MR. BURGESS: (Inaudible). Central Atlantic is a commercial shark dealer.

4 MR. DUNNIGAN: Thank you.

5 PARTICIPANT: Totally incorrect.

6 MR. DUNNIGAN: We're getting to the point now -- I think we're not winding down because I'm
7 telling you you have to wind down because of time. I'm sensing from the group that we're running out of
8 energy for the afternoon session, so -- Bob, you want to make the last comment here?

9 MR. SPAETH: I'll let it pass.

10 MR. DUNNIGAN: Okay. Let me -- I need your attention for some housekeeping issues. First of
11 all, thank you Sonja very much. Thanks to the shark group. They want to do more. So I don't think there
12 is a good likelihood that they're going to be able to get a lot more done tonight after a public hearing.
13 We're not scheduled to start tomorrow morning until 9 o'clock. So let me propose that the shark group and
14 others that want to come and sit with them could meet in this room tomorrow morning at 7:30. You
15 wanted some more time. That's when we have a good opportunity on the agenda to do it.

16 PARTICIPANT: (Inaudible).

17 MR. DUNNIGAN: Somebody suggested 8 o'clock. That leaves you a half hour short, but if you
18 just want another hour to see what kind of progress you can make, that's fine. Any objection to doing that,
19 except for Sonja and Margo? Okay. So 8 o'clock tomorrow morning the shark breakout group will
20 reconvene in here. And in response to Rusty's question, yes, we will make some time at the beginning of
21 the session tomorrow morning, but not a lot. But we will make some time at the beginning of the session
22 tomorrow morning, so that they can report further on what they learned and we'll have some further
23 opportunities for questions.

24 Now, for tonight, the public hearing is going to be held in here at 7 o'clock. Again, I encourage
25 all of your to be here not only to learn, but out of respect for those that have come to give us their views.
26 We would like you to take all of your materials up off the table because we haven't yet decided how we
27 want to configure the room. That gives us the opportunity to do it without having to move any of your

1 personal belongings. So take your materials to the Alabaster at 7 o'clock. Thank you very much.

2 (End Tape 7, Side B.)

3 MR. DUNNIGAN: Thank you for coming to this public comment portion of the joint meetings
4 of the highly migratory species and billfish advisory panels. My name is Jack Dunnigan. I am the
5 Executive Director of the Atlantic States Marine Fisheries Commission. However, this evening I am here
6 in my capacity as a contractor to the National Marine Fishery Service. The Commission has been
7 contracted to assist in a number of the activities involved with the implementation of the Sustainable
8 Fisheries Act, and one of them is assisting in the development of the amendments to the highly migratory
9 species plans. Yes, ma'am?

10 PARTICIPANT: Did you ask all the advisory panel (inaudible), please?

11 MR. DUNNIGAN: We did. We would ask any advisory panel members from either of those two
12 advisory panels to come join us at the table, but we would like to reserve these middle seats on this wing
13 for people who are making statements. Thank you.

14 The -- under the Magnuson-Stevens Fishery Conservation and Management Act, the Secretary of
15 Commerce is responsible not only for implementing, but also for developing and preparing fishery
16 management plans for Atlantic highly migratory species. Currently, there is a fishery management plan in
17 place for billfish and for sharks and swordfish.

18 The Sustainable Fisheries Act was passed by Congress a year and a half ago and made a number of
19 major changes to federal fisheries law, most notably in the areas of over-fishing and rebuilding over-fished
20 stocks, greater attention to by-catch, and greater attention to essential fish habitat.

21 Under the SFA, the Regional Fishery Management Councils are responsible for implementing --
22 developing fishery management plans that need to be presented to the Secretary of Commerce by the 30th of
23 September of this year that reflect the new requirements of the law. And because the Secretary is
24 responsible for developing these plans for Atlantic highly migratory species, the Secretary also is under the
25 same mandates that are contained in the SFA and the Magnuson-Stevens Act to prepare such amendments.

26 That is the process that is underway right now. The National Marine Fisheries Service who is
27 carrying out this responsibility for the Secretary has held a series of scoping meetings. They are now in the

1 stage of developing issues further based upon the record that they have and we'll be putting together a series
2 of iterative documents that will become the draft fishery management plan.

3 The two advisory panels that are meeting here in Tampa this week have been put together by the
4 Secretary to assist the National Marine Fishery Service in its task of developing these fishery management
5 plans. They have held a series of meetings so far. The meetings this week generally are focusing
6 specifically on issues of over-fishing and of rebuilding over-fished stocks. And those are the issues that the
7 Service and the advisors are particularly interested in hearing from the public about this evening.

8 The process that we're going to follow is going to be a simple one and one that is familiar to most
9 people that have been involved in fisheries issues. We have most of the members of the Advisory Panels
10 that are here sitting around the table. Any who have just come in the back door are invited to come up and
11 sit here and join us. They are here to listen to what you have to say.

12 What we would ask you to do is we have a number of people who have signed up. There are only
13 four so far who have indicated that they would like to have the opportunity to make a statement. If
14 anybody else would like to have the opportunity to make a statement, please sign in at the back of the
15 room. You'll see Mark Murray-Brown, and there should be a sign-in sheet right by the door, and you can
16 add your name to the list. But we will start with those who have signed in so far.

17 We will ask people to come up and make their presentation. We will allow for the opportunity for
18 comments or questions by members of the advisory panel or the National Marine Fishery Service staff who
19 are here. However, we're not here tonight to be engaged in a debate. We're not here tonight to see a lot of
20 back and forth and to and froing. This is an opportunity to get the views of the public on the record so
21 that the advisors in the National Marine Fishery Service will have that input as they proceed through their
22 consideration of the amendments that are needed to the highly migratory species.

23 We had originally thought we would be limiting comments to about five minutes. Given the
24 number of people who have signed, we probably have some more flexibility in carrying that out. I would
25 ask you to keep your comments to five minutes if you can. I won't try to cut you off, though, until you
26 get up to around 10 minutes. I think we ought to be able to accommodate that given the few number of
27 people who have requested the opportunity to speak.

1 With that by way of introduction, I think we should go right to the opportunity for public
2 comment. And I'm going to call on individuals in the same order in which they signed up. The first name
3 that we have on the list is Kim Stanbury (phonetic). Please come up and identify yourself and what your
4 affiliation is, and make your comments to the advisors. Thank you.

5 MR. STANBURY: Now, sir?

6 MR. DUNNIGAN: Yes, please.

7 MR. STANBURY: Okay, thanks. My name is Kim Stanbury, and I actually represent a unique
8 organization in a sense. It's called Free Dive List. It is owned out of California, and we're a group of free
9 divers worldwide. We're about 500 members. We represent 35 countries, and we're guys that get in the
10 water with very simple gear. Mask, fins, wetsuit if necessary, and spear gun. Muscle-powered, meaning
11 bands. You've got to use your own muscle power to load the gun.

12 I'm requesting that we be added as another gear alternative to fish the Atlanta Tuna Fishery. It's
13 that simple. We're very low impact. These tuna are in highly visible clear water. We can easily select
14 fish, so I know that you're looking to rebuild a fishery and leave certain fish out of being taken. We can
15 make that selection very easily while in the water.

16 Our ability to even shoot a tuna like this is pretty low if you think about the odds against us.
17 There is two organizations that you have to take records to, and they require -- they both stress very clearly
18 an ecological approach to spear-fishing, only taking what you need, and obeying the laws wherever you are.
19 So it is a very ecological group. And as I said, we're very low impact. We're not commercial fisherman.
20 We hunt for our families, and we hunt for ourselves for the pride of shooting a big fish.

21 And I've noted on the list that we also have several fisheries (inaudible) and managers around the
22 world on our list who are active free divers. And free diving means you've got to hold your breath to get
23 below the surface. And these people are in California and Virginia and even South Africa and Australia, and
24 they're active free divers as well. So that's it. I'm just looking to be added as a gear -- as a gear category.
25 Muscle-powered spear guns. No scuba gear. Fin mask and snorkel. That's it. That's all I have to say.

26 MR. DUNNIGAN: Thank you, Mr. Stanbury. Would you answer some questions if we have
27 any?

1 MR. STANBURY: Gladly.

2 MR. DUNNIGAN: Thank you. We'll take a couple of minutes of questions.

3 PARTICIPANT: Are you talking about (inaudible)?

4 MR. STANBURY: And/or yellowfin. Yes. Correct.

5 PARTICIPANT: What is the survival rate of the divers?

6 MR. STANBURY: I'm glad you brought it up. As you know, it is a food chain out there.

7 PARTICIPANT: You're going over to spear a giant bluefin. You're going for a ride, I guess.

8 MR. STANBURY: You're going for a ride. That's correct.

9 PARTICIPANT: How many divers and how many tuna are you talking about in a year would be

10 involved in this?

11 MR. STANBURY: I have one category in there for sure. Yellowfin tuna -- over 100 pounds in

12 California -- never taken less than 10. Pretty low impact. I mean, you're talking big, fast moving fish. I

13 read reports of guys who hunt for three years before they get one fish. I think that puts us in the very low

14 end of the category truthfully. I can't imagine anybody else can take less fish than we get, except maybe

15 me, myself, with a fishing pole. That's about it.

16 PARTICIPANT: Could you load our (inaudible) tags in your spear gun?

17 PARTICIPANT: How do you join?

18 MR. STANBURY: Well, actually, some fish-tagging is actually done by members of our list.

19 But those are usually whale sharks and sharks that have pretty good, you know, thick skin. I saw another

20 question. Yes?

21 PARTICIPANT: Yes. At another AP meeting, I believe that this topic was brought up one time,

22 and it was almost laughed off. We didn't have anybody to present it in the fashion that you did, but the

23 topic was brought up. I do a fair amount of spear fishing myself, although never for the large pelagics

24 (phonetic), although I have been in the water with the tuna and I do know especially off the northeast that

25 although we -- it might seem somewhat humorous and it might seem like a very difficult thing. I know by

26 experience, when you're up there chunking, it is not a difficult thing. I've been in the water and had these

27 fish close enough to touch, literally.

1 Also, as a spear fisherman, I know that a high percentage of fish that are speared are not recovered.
2 They are lost after they are speared, and that's what I would have concerns about. Very great concerns about
3 having this included as a fishery with the high loss rate of fish that are killed and the subsequent mortality.

4 MR. STANBURY: Are you speaking of tuna fish, in general, that you know about, or, I mean,
5 large pelagics, or just fish in general.

6 PARTICIPANT: I have no experience spearing a tuna or attempting to, only with other fish.
7 And I know that one of the things -- the fish that seem to be most recoverable are those that are firm, bony,
8 scaly, something that doesn't tear off the spear easily. And tuna doesn't fall in that category. I'm sure that
9 the spear guns you all use and the equipment is modified -- I'm assuming.

10 MR. STANBURY: Yes.

11 PARTICIPANT: -- for these large fish. However, do you have any information about, you know,
12 can you address that at all?

13 MR. STANBURY: I really can't. I can only tell you that the modified guns are huge. They are
14 four to six bands. They're probably overpowered if anything. Most of the stories I hear on line are either
15 mis-shots or somebody fights a fish for an hour. I just don't have information. I don't know. It's a good
16 question. I don't know.

17 PARTICIPANT: Okay. It's something, I think, has to be -- would have to be considered before
18 any kind of action could be taken. At least, that would be my recommendation because I think that that is a
19 very big concern. It would certainly be a concern of mine.

20 MR. STANBURY: Also, I think, added to that, within our group of 500 people, there is probably
21 less than 10 percent of us who are interested in going that far off shore, getting in the water and actually
22 doing it. So the numbers I was even shooting at tuna is very low.

23 PARTICIPANT: Your group -- you say that you're pretty much an international organization?

24 MR. STANBURY: Yes.

25 PARTICIPANT: Do you have any knowledge to the amount of people you might have along the
26 east coast?

27 MR. STANBURY: No. But I could go back to the list manager and ask him. He is the owner of

1 the list. I'd be happy to put him in touch with somebody and, you know, have a conversation going there.
2 Because we try to collect information and we maintain official records, things like that. And I'd be happy to
3 give you feedback honestly about, you know, loss rate and that kind of stuff.

4 PARTICIPANT: Thank you. Mr. Weiss?

5 MR. WEISS: Yes. I'd just like to understand a little bit more about this. You say you hold your
6 breath, right?

7 MR. STANBURY: Yes.

8 MR. WEISS: And then you go down and you shoot a 500 pound tuna, and you kill him, right?
9 And he goes to the bottom. Are you going with him? I mean --

10 MR. STANBURY: That's a good question. That's some of the modified gear. Most tuna rigs go
11 back to a float line with 500 feet of line on it. And then another 500 feet of line to the next float. So there
12 is 1,000 feet of line. And the fish often pulls out both 1,000 feet of line, and both floats can go down.
13 And then you sit in the area until the floats come back up.

14 MR. WEISS: You don't hang on to the fish?

15 MR. STANBURY: No, it's -- well, actually, not completely true. What happens then is the float
16 line goes back to a float goes back to basically a boogie board on the surface. And an eye bolts through the
17 middle of the boogie board. So the fish -- ultimately, there is something that the diver is going to hang on
18 to and ride on the surface.

19 PARTICIPANT: You know, I've had the opportunity to harpoon (inaudible) fish, and I've seen
20 these fish go for five miles, you know, with the harpoon and the ball and whatever else.

21 MR. STANBURY: Right.

22 PARTICIPANT: Are you going to ride the boogie board now for five hours?

23 MR. STANBURY: They ride it. That's exactly right. And the chase boat stays with them.

24 PARTICIPANT: Oh, I see.

25 MR. STANBURY: Because to qualify for the record, or to qualify as any kind of a fish that you
26 take that qualifies for records, you have to maintain contact with that fish through the float system. You're
27 not just indiscriminately shooting a fish and letting him run off with your floats.

1 PARTICIPANT: This could help with mixing rates. (Laughter.)

2 MR. DUNNIGAN: Mr. Spaeth?

3 MR. SPAETH: Bob Spaeth. My question is, you know, I heard this about spear -- what is the
4 difference between a harpoon and the kind of dart or spear that you would use off of yours? I'm trying to
5 compare to --

6 MR. STANBURY: I know nothing about harpoons. I don't know.

7 MR. SPAETH: Does anybody have any information about how the harpoons pull out or any of
8 that?

9 PARTICIPANT: I mean today we use harpoons in the (inaudible) category. Most of the fish are
10 electrocuted so they are frozen. I mean, you know, and basically if you don't electrocute them, you have a
11 certain percentage that pull the dart and just keep going or that you lose at some point.

12 MR. SPAETH: So if they electrocute them, it might be all right. I've seen video of that. When
13 divers get in the water down off of North Carolina, and they can almost pet those giant bluefin tuna. So I
14 have no doubt that, you know, you could be successful in spearing them, but you might be a little better
15 off if you pointed toward like Atlantic swordfish, Atlantic sharks, yellowfin tuna, things of that nature,
16 because, you know, it is like ounces. The allocation battle over a bluefin tuna is like -- goes into ounces.

17 MR. STANBURY: I understand.

18 MR. SPAETH: For 10 fish, there are people at this table that would sell their mothers. But my
19 question is to Rebecca. Do you need -- you know, are we locked down so tight on sharks and swordfish and
20 yellowfin -- especially yellowfin and big eye and albacore -- is the gear locked down tight on that or is that
21 still somewhat open or what?

22 DR. LENT: Well, this is the advisory panel, so this is NMFS's opportunity to hear from the
23 advisory panel members about how you'd feel about the introduction of a new gear type. I think people
24 have already alluded to the fact that for bluefin, there is not a lot of wiggle room. Perhaps for some of the
25 non-(inaudible) in the bay species, maybe you can think about that and let us know. As far as locked down
26 tight, we do have in the final consolidated rule, which hasn't gone final yet, but we do have a list of
27 authorized gear. So that's -- it's kind of a critical moment to think about gear types.

1 PARTICIPANT: It certainly sounds like a clean, you know, pretty exciting mess.

2 MR. STANBURY: Yes. It's very direct.

3 PARTICIPANT: I'm sure you'd be here somewhere.

4 MR. DUNNIGAN: We have a couple of minutes for just a few more questions. I have Jose and

5 Ellen and Ray Bogan and Marcia Haas and then we're going to have to stop.

6 MR. CAMPOS: Sir, you do have tournament?

7 MR. STANBURY: Not within the species of tuna because they're -- right now, the guys on the

8 west coast go to Mexico, and so it is hard to convene everybody where the tuna are. Do you know what

9 I'm saying? Yes, we do, but not within the species of tuna. But, yes.

10 MR. CAMPOS: Do you know that in North Carolina, they have a lot of fish schooling?

11 MR. STANBURY: Okay.

12 MR. CAMPOS: And you call your 500 members. Let have a tournament in North Carolina.

13 Then you get let's say 100 of your divers in the water. I used to be a spear diver too. Do you get 100 or

14 are you going to kill 100 giants?

15 MR. STANBURY: My guess is that of the people I know on-line, you'd be lucky to get 10.

16 First of all, you're talking \$1,000 gun. I mean, you're talking a lot of expensive -- you know, you're

17 talking just the gun and the float line and everything. Not all 500 members by any means shoot tuna. I

18 think we just want access to shoot tuna. That is really the thing. If we're limited to so many or if you

19 raffle them off in some sort of a lottery, that is fine. We're just looking to be included as gear. That's it.

20 Whatever -- we will would follow the same regulations everybody else does, or whatever was cut out for us.

21 MR. DUNNIGAN: Moving ahead. Ellen?

22 MS. PIKITCH: I have a couple of questions.

23 MR. STANBURY: Yes.

24 MS. PIKITCH: If you have tournaments with non-tuna outside of the east coast, what categories

25 (inaudible)?

26 MR. STANBURY: It varies per club and it can be -- well, it has to be a legal fish, obviously.

27 Within Florida, things like dolphin have just been put on the list. Certain groupers that are legal.

1 Anything that is legal to be taken with a spear, but one of the things that we have intense debate on among
2 ourselves right now is limit is not going by weight is trying to limit how this is done so that very few fish
3 are taken during a tournament. And there is even a split among the list over the whole idea of tournaments.
4 A lot of people on this list are against the idea of just shooting fish for a prize. Most of us really focus on
5 shooting fish for our families -- for just the meat that we taken home and put on the table.

6 Some of us are out there, though, and we see large fish and we might want to take a shot at that
7 fish. And that's where records come in. I don't think you'll find probably more than about 25 percent of
8 the list participating in the tournaments. Most of us prefer to be in the ocean with a spear gun, simply
9 being out there. Am I answering your question?

10 MS. PIKITCH: (Inaudible).

11 MR. STANBURY: It's been a controversy on our own list, and there is a tremendous divide over
12 that whole idea of a competition for a fish. I personally don't care for the idea, but they do exist.

13 MS. PIKITCH: (Inaudible)?

14 MR. STANBURY: They can be dolphin, grouper -- I don't know what all the legal categories are
15 in shore. I'm trying to think.

16 MS. PIKITCH: Ever shot a marlin?

17 MR. STANBURY: No, I don't believe they're legal right now. No, it's a good question. The
18 only place you can -- I believe you can only spear fish a marlin outside the United States right now, and I
19 read that on the list because it's a worldwide list, but there is -- that is a questionable -- I mean, you're
20 talking a billfish there. That's a questionable thing to even go do.

21 MS. PIKITCH: (Inaudible)?

22 MR. STANBURY: Good question. Probably not. I mean, I can't -- none of us are commercially
23 oriented. You know, if we have a tuna that big, I --

24 MS. PIKITCH: What are you going to do with a 200 pound tuna?

25 MR. STANBURY: Well, truthfully, I think that you're going to see more like one and two
26 hundred pound tunas that are shot. I have a hard time we're going to be capable of shooting -- I mean, there
27 is only two large tunas I know about taking period. One is about 300 some pounds taken by Terry Moss,

1 and then the other tuna that was taken was in Greece at about 700 pounds or somewhere in the
2 Mediterranean. That's the only two large tuna I now worldwide taken. So I think you're going to see tuna
3 speared more down in the 100 plus or minus range. I really do. And those are -- you know, it is the same
4 thing that goes on in a charter boat. I think a fish is going to be used just like on a charter boat. I myself
5 would take it home and pay my child support with it. But my wife loves fish.

6 MS. PIKITCH: (Inaudible).

7 MR. STANBURY: We're strictly recreational fisherman, and we're really looking just to be able
8 to be included in the recreational category. I mean -- good. I understand.

9 MR. DUNNIGAN: I'm going to limit panel members to a quick question. We've got a couple of
10 other witnesses who need an opportunity.

11 PARTICIPANT: Mine is more a comment than a question.

12 MR. STANBURY: Sure.

13 PARTICIPANT: I think this is more selective than long line, more selective than first
14 (inaudible), and therefore, you know, I have -- I probably from the South Atlantic have a little problem
15 with bluefin.

16 MR. DUNNIGAN: Mr. (inaudible)?

17 PARTICIPANT: Again, my only concern would be gear conflicts. For instance, we have certain
18 direct areas where dive boats show up. Then the whole scenario changes as far as the operator's
19 responsibility (inaudible) in (inaudible) water. So take, for instance, there is a tuna fleet that is chumming
20 fish anglers, and all of a sudden now there is divers in the water. That changes the whole scenario for the
21 other historical fishery, so I think that concern is a legitimate one for (inaudible).

22 MR. STANBURY: I agree.

23 MR. DUNNIGAN: Mr. Stanbury, you going to comment?

24 MR. STANBURY: Yes. You could just exclude us from those zones. I mean, you know, there
25 is something just called courtesy too. And truthfully, you see a fishing fleet coming at you, you've got to
26 be crazy to be in the water. Yes, I understand.

27 PARTICIPANT: Would you be willing to accept a 50 percent quota count?

1 MR. STANBURY: Let me see? Half of nothing is what?

2 MR. DUNNIGAN: Mr. Stanbury, thank you very much for coming. This has been very helpful
3 and obviously instructive and interesting to the members of the panel. Thank you very much.

4 MR. STANBURY: Thank you.

5 MR. DUNNIGAN: Let me advise panel members. We have a lot of side discussions going on.
6 They are all being picked up and we owe our presenters the courtesy of our attention. So let's keep it down
7 on the sides and try to listen. The next person that is signed up is Russell Dunn.

8 MR. DUNN: I'm Russ Dunn. I'm with the Ocean Wildlife Campaign. I think I'm slowly
9 becoming familiar to many of you at this point. I want to thank the fishery service for allowing us the
10 opportunity to comment tonight. I don't think anyone in this room can dispute the fact that traditional
11 fisheries management regimes have resulted in fish populations being reduced to historic lows, damage
12 DECO (phonetic) systems that have a reduced ability to respond to natural and man-made threats or
13 disturbances, and increased conflict among resource users.

14 Magnuson-Stevens has provided both the impetus and opportunity for us to revamp these failed
15 management techniques. We must now take advantage of this opportunity and begin management based
16 upon the biological (inaudible) of these fish. As such, the objective of the HMSFMP and the FMP in
17 manager billfish must be to prevent or end over-fishing, rebuild populations to levels that will support
18 MSY or greater in the shortest possible time, significantly reduce by-catch, identifying conserved essential
19 fish habitat, and implement a precautionary approach.

20 Simply halting the rate of decline of a species cannot be considered a rebuilding program.
21 Rebuilding plans must include at a minimum a clear and appropriate definition of over-fishing for each
22 species, a specific rebuilding time frame to rebuild MSY in the shortest possible time, and rebuilding
23 trajectories with reference points to gauge the status of a fish population relative to its over-fished status,
24 and the ultimate rebuilding target.

25 The OWC supports an approach that puts maximum fishing mortality limits on the sliding scale.
26 That is, fishing mortality limits necessarily decrease with decreasing biomass, thereby providing increased
27 population declines at lower stock levels. No plan to rebuild HMS populations will be successful without

1 reducing by-catch and its associated mortality.

2 Three key actions to reduce by-catch, which should be incorporated into the FMP or the FMP
3 amendment are to close nursery and spawning grounds to fishing activities during certain times of the year,
4 counting dead discards against established quotas, and requiring that all by-catch brought to the boat alive be
5 released alive.

6 We also believe that the fishery service should begin working toward establishing a coherent
7 network of no take fishery reserves, and propose increased observer coverage and improve data collection for
8 all HMS fisheries. That concludes my statement.

9 MR. DUNNIGAN: Thank you very much, Mr. Dunn. Are there questions from the table for Mr.
10 Dunn? Terrific. Thanks an awful lot for coming. Appreciate it very much.

11 MR. DUNN: Thanks.

12 MR. DUNNIGAN: Next on the list is Ellen Pikitch.

13 MS. PIKITCH: Is it okay if I use the overhead projector?

14 MR. DUNNIGAN: Sure. Just -- we'll help you keep track of time.

15 MS. PIKITCH: Cordless microphone. Now can you hear me? Yes, definitely. Okay. I'll try to
16 keep this short and not too technical, but part of the reason that I'm speaking this evening is to give the
17 broader group a chance to hear some of the things I talked about in the shark breakout group today. And I
18 guess the theme -- I'm sorry. My name is Ellen Pikitch -- Dr. Ellen Pikitch -- and I am director of the
19 fisheries program at the Wildlife Conservation Society.

20 I'm also an affiliate faculty member at the University of Washington. Okay. My theme tonight
21 will be to talk about how we develop rebuilding programs, what are the most important factors to consider,
22 and this is something that relates to the last speaker's comment about biological imperatives -- trying to
23 look at the biological imperatives in developing these targets and other reference points.

24 This is to prove that I'm not a great artist. But I created this graph earlier today, and I thought it
25 would be important for me to define some terms. Sure. What I've done here is something that is called the
26 Shaeffer production model. And it is a pretty standard model that is used in fishery science to look at
27 populations of fish. And what it is is the relationship between biomass going across the x axis and

1 production or how much catch could be taken on a sustainable basis.

2 And what a Shaeffer production model says is that there is a parabolic relationship between stock
3 biomass and production. The maximum value that you see here on this parabolic curve. It hits the x axis
4 and stops there. That is what is called the carrying capacity of the stock, and that is the maximum -- it is a
5 theoretical maximum stock abundance that could occur in nature, carrying capacity being set by the limits
6 of the habitat and other native biological factors.

7 The two important parameters of this curve are the carrying capacity and something called R, the
8 intrinsic rate of increase. And that intrinsic rate of increase has to do with how quickly a population that is
9 reduced to a low stock size could recover if it were pushed down to a very low stock size. The bigger they
10 are, the higher the chances are, the faster a stock could recover.

11 This type of a model can be used and in fact has been used to develop reference points for fisheries
12 management and for developing rebuilding programs in the cases of depleted stocks. One thing that is
13 really convenient about this particular model is that if you know the carrying capacity and you know R,
14 those two parameters, then it is very easy to estimate all the reference points. And as an example, the
15 biomass that produces the maximum sustained yield occurs at exactly $K/2$, halfway between zero and the
16 carrying capacity.

17 And the maximum sustained yield can be estimated pretty easily from these parameters. Also the
18 fishing mortality rate that produces maximum sustained yield is equal to $R/2$. Okay. Well, now that I've
19 given you -- that's really just by way of introduction. There are two conceptually different approaches to
20 estimating the parameters of a production curve.

21 And one I'll call the empirical approach, and this is an approach that is one of the approaches used
22 in the shark evaluation workshop document report from 1996. And that is that you try to get some points
23 on the curve and you use those points to try to fit a curve through the points and to estimate what K is and
24 what R is. And one of the things, if you look in classic fisheries textbooks that you find, is that it is
25 actually really hard to get good estimates of these parameters in species that have taken what is called a one-
26 way trip.

27 And large coastal sharks have taken a one-way trip; that is, that since the inception of the fishery,

1 they have gone in only one direction, and that is down. The population has declined. And, conceptually, it
2 makes sense that it would be hard to estimate those parameters when you have a one-way trip, because
3 think of it this way. You push something down, and if it hasn't had a chance to recover, how do you
4 directly measure its ability to recover? You don't have the direct information to do so.

5 So this is a problem that is true for the large coastal shark populations, but it is a general problem
6 for any population of fish where you have had a one-way trip. Another approach for estimating this
7 intrinsic rate of increase is to go to the biology of the organisms and to look at it from the other side of the
8 coin and to say what do we know about how long it takes for a shark to mature? When a shark is mature,
9 how many young does it have at a time? How many years in between reproductive events are there on the
10 average? What is the survival rate of the young that a shark has? That is what we call a demographic
11 analysis.

12 And that is the other way of potentially estimating an intrinsic rate of increase. Now in the best
13 of all possible worlds, you'd use both approaches and they'd give you the same answer and you could walk
14 away and feel pretty confident that you knew what to do about rebuilding depleted shark populations.

15 The situation is that today there are a couple of different estimates out there of R and the other
16 parameters. Based on these different approaches and they say very different things. None of you should
17 need to take notes on this because I have provided a handout. What this shows, if you look on the shark
18 evaluation report, this is in appendix 4, all I've done here is to take the model results -- and that was that
19 first approach that I talked about.

20 You take data on catches and catch period effort and you fit a model to that and you get parameters
21 out. And when you use that in what was called the unweighted production model fit in a shark evaluation
22 workshop report, an R value of .26 came out of that analysis. The implications of that value of R are that
23 if the quota had not been reduced -- that's that lower line -- put it up higher? Okay. The triangles show
24 what would have happened if the catches that we saw in 1995 had continued.

25 And what you see is that the population would continue to decline and would eventually go to zero
26 or go to extinction had there not been any action taken. What actually did happen was that the quota was
27 cut in half and I've indicated that on this graph by the solid line, 1995, minus 50 percent -- this really dark

1 line. And what that shows is that, if things stay at that point, then given an R value of .26, what we
2 expect to see over time is an increase in the population and it would reach a value of $K/2$, and that would be
3 under a classic Shaeffer model the biomass that produces MSY. So it would reach its rebuilding target
4 under that definition in less than 10 years.

5 So if we believe these results, if we think that they are the best results, and if we have complete
6 confidence in them, then this analysis would indicate that a 50 percent cut in quota that is now in effect -- if
7 that continues, we should see recovery within 10 years.

8 Okay. What about if you look at the R values you get from the demographic analysis, and, again,
9 this isn't something that I came up with, but this is something that is contained in the shark evaluation
10 workshop document report. There is a table near the beginning of that report that summarizes various
11 values of R that were derived based on the types of information I talked about before. That is, how long it
12 takes for a shark to mature, how many young it has, and how many years in between breeding intervals, and
13 the survival rates.

14 And if you look in that table, the highest value for R on a demographic basis was .12. So you
15 could say -- and it turns out the higher the R value, the more optimistic your scenario will be in terms of
16 potential rebuilding.

17 But an R of .12 is quite a bit lower than the R of .26 that came out of the production model fit.
18 And, in fact, the implications are quite different. So, again, for a reference, this line that goes across would
19 be your target biomass for rebuilding. This is, again, assuming that you adopt the Shaeffer model and its
20 reference points as your targets, which is another thing I'll get to in just a minute.

21 But what this graph says is that if you fix R at .12 and then you let the other parameters be
22 estimated from the data, then you see a very different picture. And what it says is that the current status quo
23 quota, which was cut by 50 percent from 1995 levels, instead of leading to rebuilding within 10 years, leads
24 to a slight continued decline. And, in fact, you'd get not a rebuilding but the opposite occurring.

25 Now .12 in $R = .12$ was the highest value that the workshop came up with based on
26 demographics. The average value or the median value to be more precise was an R of .07. And, in fact, the
27 lowest value that is on the table was .02. I'll just show one more graph.

1 If you look at the median value of .07, again you see that looking at this type of approach, if the
2 catches stay where they are right now, today, and that continues, the predicted trajectory of the stock is not
3 recovery but a very significant decline. And it would take quite a large additional cut -- in fact, you'd have
4 to get down to 20 percent of 1995 levels before you see a positive trajectory.

5 So if a demographically-based R is used to develop your targets and rebuilding plans, you're
6 looking at a situation -- a very pessimistic situation, much more bleak than that that came out of the shark
7 evaluation workshop production model approach. I want to talk a little bit about precautionary approaches
8 and try to wrap this up.

9 Sometimes when we have conflicting information, it is hard to decide what to do. What do you do
10 when you have one estimate that says everything looks rosy, and another estimate that says things look
11 really bleak? One approach that people often do is say, well, let's take an average and in some way hope
12 that the average reflects reality.

13 And the problem with doing that is that you really need to look at the consequences of being
14 wrong if either one of those things is true. In, in fact, the stock is highly productive and it would recover
15 within the 10 years and instead you'd take a more conservative approach, then you should really see that
16 very quickly. You should see a stock rebounding very dramatically, and this should show up really quickly
17 and you could make a miscourse correction and get the fishery back on track.

18 But if, on the other hand, you are wrong in the direction that you think the stock is more
19 productive than it actually is, but you go ahead and you take action thinking that it is more productive, you
20 could end up driving a stock down to very low levels and you may be causing some irreversible effects or
21 some effects that would be extremely difficult and even more time-consuming to turn around.

22 One of the reasons that a precautionary approach has been advocated in fisheries management is
23 that there are a lot of uncertainties, and we want to be able to look at what are the consequences of being
24 wrong? What would be the impact of being wrong and what can we do about that? And in the case of
25 sharks, sharks have the type of life history characteristics that lead them to a situation where once depleted,
26 it is very difficult to turn that depletion around and recover them. They mature late. They grow slowly.
27 They have, on average, very small litter sizes. We don't know as much about the survival, but even as we

1 heard in some of the discussions today, if you assume it is really high, the recovery potential is not that
2 great.

3 And in a lot of ways, sharks are a lot more like whales, believe it or not, in their life history
4 characteristics than they are like other fish. And one of the things that the AP might want to look at in
5 trying to develop rebuilding targets is to look at similar -- species with similar life history characteristics
6 that have been steadied for long periods of time and where precautionary approaches have been developed and
7 see whether or not the advisory panel thinks it is appropriate to use those as a model for developing targets
8 for sharks.

9 I'll wrap up in just a minute. Okay? I just want to explain this one graph. This is from the
10 International Whaling Commission. It is just to show an alternative to the standard Shaeffer model. Here
11 you see a curve that instead of being completely symmetrical is somewhat skewed. And you have
12 maximum sustainable yield occurring not at exactly half the carrying capacity, but at 60 percent of the
13 carrying capacity. And by scientific consensus, this is the curve that is used to model whale populations.

14 And that is one way the precaution is built in. The second way is that -- and this is actually going
15 back a while ago, and I'm short on time so I can't get into all the details of what they're doing now, which
16 is even more conservative. But the second way the precaution was built in was in the setting of catch
17 levels. And initially catch levels were set instead of at the maximum sustainable yield at 90 percent of the
18 maximum sustained yield.

19 That 10 percent difference was another way of building some precaution into the management
20 strategy for whales. So anyway, I guess that kind of wraps up the main points I wanted to make. When
21 you look at sharks, they have unusual life history characteristics compared to other fish, and their life
22 history characteristics put them more in the league of things like whales and other very long-lived, not very
23 reproductive organisms. And the consequences of being wrong in the management of these organisms are
24 more severe than the consequences of being wrong with more resilient stocks.

25 So I do think a precautionary approach is important to include in developing guidelines for
26 rebuilding targets for this species group, and I think that we should be looking at models that have been
27 developed for other species with similar life history characteristics.

1 MR. DUNNIGAN: Thank you very much.

2 MS. PIKITCH: Thanks.

3 MR. DUNNIGAN: Members of the panel, comments? Very good, Ellen. Thanks an awful lot.

4 The next person on the list is Matt McClanahan (phonetic).

5 MR. MCCLANAHAN: Thank you. Again, my name is Matt McClanahan. And as a good

6 Irishman, this will be very short and very simple. I've been interning for the Ocean Wildlife Campaign for

7 a few months now, and because I'm new I may have a slightly different perspective than some of you who

8 have been struggling with these issues for a few years.

9 After two days of listening to leading fisheries' scientists present the evidence of years of reading

10 the same in text books and journals, it is clear that, while individual studies may show some uncertainty, as

11 a whole the research clearly shows that fishing mortality is too high and maintaining the status quo will

12 result in continuing population declines for most species.

13 What amazes me is that so many people can refuse to believe the best science available. Some

14 people point --

15 (End of Tape 8, Side A.)

16 MR. MCCLANAHAN: I sympathize with the people who may be impacted by the short -- in the

17 short term by the implementation of needed conservation and management measures, but unless these

18 measures are implemented now, more drastic measures will have to be implemented in the future -- in the

19 near future. And I don't think that it is fair to take a chance with a resource that belongs not to a few user

20 groups but to the public. Thank you.

21 MR. DUNNIGAN: Questions? Mr. Weiss.

22 MR. WEISS: What is your definition of short-term when you say you're -- you feel sorry for the

23 short-term loss? I mean, what -- do you have a time frame on short-term?

24 MR. MCCLANAHAN: Well, I think -- no, not a definite time frame. But I think that we're all

25 looking for the same -- I mean, everybody here would like to see the same thing, and that is we'd like to see

26 healthy fish populations.

27 MR. WEISS: Would you say 20 years is short-term?

1 MR. MCCLANAHAN: I don't have like a definite time on -- what do you think short-term is?
2 Can you -- you can't say it is seven years, but not eight years.

3 MR. WEISS: I don't know, but I don't think 20 years is short-term. It could be two years is
4 short-term, or one year is short-term.

5 MR. MCCLANAHAN: Well, I don't think that -- I mean, for some of these populations, it is not
6 going to take anything except more than about 10 years. So we're only looking at 20 years with, you
7 know, at most -- what, bluefin tuna?

8 MR. WEISS: Twenty years? Yes, I guess you could say that.

9 MR. MCCLANAHAN: So with swordfish, we might be looking at five. We could be looking at
10 eight. And, yes, I'd consider that short-term.

11 MR. DUNNIGAN: Mr. Spaeth?

12 MR. SPAETH: I think in your statement you asked or said that 50 percent reduction --

13 MR. MCCLANAHAN: In the Ocean Wildlife Campaign statement?

14 MR. SPAETH: Yes. When you're talking about you should reduce the quotas again. Is that what
15 I heard you say?

16 MR. MCCLANAHAN: I didn't say that right here. I mean, the Ocean Wildlife Campaign, I
17 think, feels that way. But I didn't make that statement. But, I mean, I agree with it, yes.

18 MR. SPAETH: I heard you say something about a reduction of 50 percent, but I wasn't sure.

19 MR. MCCLANAHAN: Well, we got it recorded, so maybe we can go back.

20 MR. SPAETH: Thanks.

21 MR. DUNNIGAN: Other questions? Thanks an awful lot.

22 MR. MCCLANAHAN: Sure.

23 MR. DUNNIGAN: Next on the list is Ken Hinnman (phonetic).

24 MR. HINNMAN: Jack. Ken Hinnman, President of the National Coalition for Marine
25 Conservation. And the first thing I want to do is urge all of you to take the job of putting together
26 rebuilding plans for these fisheries very seriously, because, as somebody who has been involved in these
27 issues for 20 years now, without a specific target, a specific time table for getting there, regardless of what

1 that time table is, without establishing reference points along the way to assess progress, to hold managers
2 accountable for reaching that goal, we remain in the situation we've been in for 20 years, which is after each
3 assessment, it is just wide open as to what is done next.

4 Nobody has a clue. It's just negotiable. And under that situation, we have over-fished all these
5 populations and, at best, we've been able to stop over-fishing, but we have made no progress towards
6 recovery. Today and last week at the Bluefin Tuna Rebuilding Workshop in Charlotte, I heard a lot of
7 concern about -- legitimate concern -- about what we put into a domestic rebuilding plan being superseded
8 by or proscribed by what comes out of a subsequent international agreement.

9 And I want to point out that there is a mandate under the Magnuson Act that is not circumscribed
10 at all by international agreement that is wholly consistent with the recommendations of the ICCAT, which
11 is to minimize by-catch and to minimize mortality by-catch, which cannot be avoided.

12 I think if you look at recent statistics for discards, dead discards in these fisheries -- recent levels of
13 discards -- you can see that we have the potential by eliminating those discards and that source of mortality
14 to reduce mortality in these fisheries significantly and hasten rebuilding, aside from what our quotas are set
15 at. And that could be up to 10 percent in the bluefin tuna fish arena -- up to 20 percent in the swordfish
16 fishery, and possibly over 80 percent in the billfish fishery.

17 So my recommendations that I'm going to mention tonight are in minimizing by-catch in the
18 highly migratory species fishery. And we have prepared a report which I have submitted to Rebecca Lent
19 and to some people on the panel, and I'm sorry I wasn't able to bring -- I hope you got yours by now,
20 Nelson. You got two? Oh, my God.

21 I wasn't able to bring one for everybody here, but if you give me your name, I'll try to send you
22 one when I get back to Virginia. But we are recommending ways to avoid by-catch as well as to minimize
23 the mortality of fish that are caught incidentally. And those recommendations are, just briefly to
24 summarize, we recommend the prohibition of long-lining and known spawning and nursery areas and other
25 so-called hot spots, where the by-catch are protected or over-fished species or age groups is highest or most
26 detrimental to the recovery of the resources.

27 Using log book data on fishing patterns and catches combined with time and spacial analyses

1 formed by the National Marine Fishery Service, time and area closures should be constructed with the
2 objective of achieving a specified by-catch reduction goal within a specified time period. And we
3 recommend the goal be to decrease the by-catch of juvenile swordfish, billfish, sharks, and giant bluefin
4 tuna by at least 75 percent from recent levels.

5 In order to enforce compliance with the closures as well as monitor their effectiveness, we
6 recommend that all long-line vessels be equipped with vessel monitoring systems -- something that is done
7 in the Western Pacific, long-line fisheries, I think -- I don't know if that is blue waters, paper on vessel
8 monitoring systems in the back. Somebody put that together, but that has some other advantages to the
9 use of those systems.

10 In addition, a comprehensive program should be established to monitor and assess the effectiveness
11 of the closures. And we have laid out a system of how you can do that. And adapt the closures, whether it
12 is shrinking them or increasing them, as those assessments dictate. We recommend reducing by at least
13 half the amount of time that long-line hooks are in the water in order to enhance the survival of fish and
14 other animals caught incidentally or that must be released according to regulation. And there are studies
15 showing that that can significantly enhance the survival of fish caught on long-lines.

16 We urge the U.S. delegation to ICCAT to seek complimentary action on an Atlantic wide basis,
17 and we think ICCAT should begin in 1998 by directing its scientific committee to study the effectiveness
18 of designating protected zones for the use of non-selective fishing gear would be prohibited during
19 rebuilding periods for swordfish, bluefin tuna, and the marlins.

20 In addition, we think management should be amended in the United States to require that all dead
21 discards in all fisheries -- not just the long-line fisheries -- be counted against all quotas as both a way to
22 keep mortality at the quota level where it is supposed to be, as well as to be an incentive to find ways to
23 keep that by-catch mortality as low as possible.

24 That's it.

25 MR. DUNNIGAN: Thank you very much. Are there questions from the panel? Thanks for
26 coming, Kim. Appreciate it very much. Next person on the list is Laurie Swenson (phonetic).

27 MS. SWENSON: Good evening. I'm Laurie Swenson. I'm from Cape Quality Bluefin. I also

1 am the executive secretary of the New England Harpooners, which I didn't mention yesterday. I'm here on
2 behalf of the other endangered species, the commercial fishermen. I will return to the specific focus that
3 you've asked about over fishing and rebuilding, but I just had a few comments about what has happened
4 here at this meeting.

5 I've really felt that things have gone well. I think it started out in Baltimore, and Pete Jensen -- I
6 don't know if he is here -- but I wanted to give him credit for getting us going on an approach to reach
7 domestic allocation issues in a way that said don't take anything away from anybody. Let's try to move
8 forward.

9 I've been a little bit scared about how smoothly things went today. I was encouraged by the
10 willingness of Dr. Powers and Dr. Porch to admit in our group session on the bluefin this afternoon that
11 there is a lot of uncertainty about mixing assumptions, a great number of unknowns in how we deal with
12 bluefin science, and that those are something that we need to think about as we try to move forward.

13 I appreciated what Mrs. McCall had to say about the existence of two dogs, one being Madison
14 Stevens and one being ICCAT and ATCA. I think that is something that the people I work with will
15 certainly appreciate. Our fears of being driven out of business may be, you know, somewhat reduced after
16 today. You know, we were really concerned about a draconian type rebuilding plan.

17 When we see the guidelines come out, then maybe we'll really be able to rest a little bit more. I
18 wanted to thank Dr. Safina for putting a human perspective on what we talked about this afternoon, because
19 there are human needs and human impacts, not just biological impacts. We need to recognize that severely
20 limited quotas would really hurt the commercial fishermen. I hope we don't have to explore any subsidy
21 routes. I hope we don't have to go there. The commercial fisherman in New England is a threatened
22 species. A lot of the fish that they fish for are operating under severe restrictions. The ground fishery is
23 pretty well decimated. Many of the other fisheries are very restricted. A lot of commercial fisherman from
24 other fisheries are coming into bluefin trying to keep themselves going as commercial fishermen.

25 Ten years is not a short-term situation for somebody who is relying on this fishery to put half
26 their income into the family situation, you know? And there is not something else that they can easily
27 turn to. That's the bottom line on that one.

1 These people have chosen to commercially fish as a way of life. It is not a game. There are
2 certain people who are supplementing their other incomes. They may have another profession, but there are
3 a great many people who do rely on the fishery. I want to comment on the net economic benefits or the
4 loss thereof from juvenile bluefin fisheries. One of the things I wanted to point out was the little handout
5 we had back on the table that talked about Western Atlantic stock rebuilding.

6 I made a very specific comment at the end, you know, loss of juvenile fishery. Net economic
7 benefits will be reduced. What happens if you take away the commercial fishery? You take away the Giant
8 fishery. You know, we are not talking about chicken feed. It is, you know, \$30 million or so into the
9 New England economy, both to the boats and to the other people who work in the support businesses. And
10 it might be more than that. You know, there is a net economic loss there that I think maybe when we
11 write the next set of publications on this, we should recognize that the commercial fishery also has a net
12 economic benefit.

13 With respect to over-fishing, this afternoon in the bluefin group, we had Mark do our recap to keep
14 things, you know, not too controversial. There was one point that I think needs a little clarification, and I
15 think Ray might be able to back me up on this. We noted -- Madison Stevens defined over-fishing in a
16 certain method and that we were -- you know, we didn't have any quibbles with that, but that over-fished
17 was something that came from the guidelines as proposed for national standard one.

18 It is not specifically defined in Magnuson. And I don't believe we necessarily endorsed that
19 concept from the guidelines. If you want, you can address that later or you can address it now. Okay. We
20 believe that the pursuit of the status quo for this particular fishery is really what we have to do. We're
21 seeing a trajectory that is going up. We're working with another dog. And, truly, we don't want to lose
22 our livelihood.

23 I am concerned, like Dr. Safina, about the level of small fish catch. But, again, you know, we
24 don't want to take anything away from anyone. We want to be able to develop our fishery. We want to
25 move on. We want to satisfy all of the national standards. I think there has been a sense to me in listening
26 to a lot of the discussion, that some of the national standards, to use your line, Jack, are more equal than
27 others.

1 Remember you used that one yesterday for us. And I personally don't think that any of them can
2 really be treated in that fashion. There are 10 of them. They're all important. They've all been put in there
3 for us to think about as we try to put together a plan to save whichever fishery it is we're working at. You
4 know, National Standard 1 is not more important than National Standard A.

5 We could look at them all, but, you know, that is just something that I'd like to leave you with. I
6 think we should go and to develop this FMP with the whole intent of the Magnuson Act in mind and
7 remember that there are people that rely on this fishery for their living. That's it.

8 MR. DUNNIGAN: Okay. Thanks, (inaudible). Do you have comments or questions for the
9 table?

10 PARTICIPANT: I don't actually remember saying that last night, but since I'm an old man now,
11 they say it is the first thing to go, so --

12 MR. DUNNIGAN: Thank you very much for coming. Appreciate it. Next person on the list is
13 Raymond Swindell (phonetic).

14 MR. SWINDELL: Yes. My name is Raymond Swindell. I'm the President and CEO of
15 DeHooker, Inc. There has been great concern about the loss of certain parts of our fisheries due to over-
16 fishing and some of it to do with improper handling and release techniques of fish.

17 I believe that if people had a product that could release a fish in the water without ever touching --
18 have to take it out of the water -- and remove the hook, I believe that would enhance the survivability of the
19 fish. And I have some testimonials here. And some pictures of the product. And we got a lot at stake here
20 on the table. And you all are doing a good job. I was fortunate enough to sit here the past couple of days
21 and listen to the discussions. And, finally, everybody is working together. They're not fighting. That's
22 what I like.

23 And let's quit pointing fingers and know we got a job to do, and let's do it. And that's all I have to
24 say.

25 MR. DUNNIGAN: Okay. Are there questions for Mr. Swindell? Señor Campos?

26 MR. CAMPOS: (Inaudible)?

27 MR. HINNMAN: Yes, sir, it will.

1 MR. DUNNIGAN: Mr. Bogan?

2 MR. BOGAN: Rave is the -- have you used this juncture to any other type industry? For

3 example, if you had gone to a charter boat or if you had gone to a charter boat, or if you'd gone to a charter

4 boat, or if you'd gone to --

5 MR. HINNMAN: Yes, sir, I have. Matter of fact, and here in these letters the Maryland

6 Department of Natural Resources actually took it upon themselves to purchase the product and give it to

7 every one of their charter boat association members, and charter boat people. And they swear by them.

8 They don't leave the dock without them.

9 Finally, they feel like they're doing -- you know, doing some good, because the fish doesn't live

10 very long after the hook stays in there. And I have the hook retention study. It is in here. It is under bits

11 and pieces -- right here -- if you'd like to take a look at that.

12 MR. BOGAN: Thank you.

13 MR. HINNMAN: You're welcome.

14 MR. BOGAN: I think you've answered the question that I had.

15 MR. DUNNIGAN: (Inaudible)?

16 PARTICIPANT: Yes. I just want to expand what he is saying, but I don't know if we're going to

17 bring this up tomorrow. You know, one of the (inaudible) we've had (inaudible) and (inaudible) North

18 Carolina where people are now taking out their books on fish that were (inaudible) various kinds of

19 (inaudible). If this something we're going to bring up tomorrow in any part of the agenda, or should we

20 discuss it now, because it's a major problem?

21 MR. DUNNIGAN: There is an agenda item tomorrow on here.

22 PARTICIPANT: Okay. So we can hold that over. Because it is a major, major problem and

23 should be addressed.

24 MR. DUNNIGAN: Mr. Eakes.

25 MR. EAKES: I'd really like the concept -- I like the thought process on all (inaudible).

26 MR. HINNMAN: Yes, sir.

27 MR. EAKES: And the method that you use is great (inaudible).

1 MR. HINNMAN: Yes, sir.

2 MR. EAKES: There are methods that will take (inaudible).

3 MR. HINNMAN: Yes, sir.

4 MR. EAKES: All the investors use (inaudible) to do how much you can to do that. That's

5 (inaudible).

6 MR. HINNMAN: Regardless of whose tool they use, Mr, Eakes, it has to be done.

7 MR. EAKES: I absolutely agree.

8 MR. HINNMAN: Regardless of whose it is.

9 DR. DUNNIGAN: Dr. Spaeth.

10 DR. SPAETH: Joe, I just wanted to thank you for coming. (Inaudible). It's one of the most

11 important things that I have. When I fish on other people's boats, I leave (inaudible) with me. And on a

12 recent trip, (inaudible).

13 MR. HINNMAN: Thank you very much, sir. And thank you very much for having me.

14 MR. DUNNIGAN: One more question.

15 MR. HINNMAN: Oh, yes sir.

16 MR. BEIDEMAN: Nelson Beideman, Blue Water.

17 MR. HINNMAN: Yes, sir.

18 MR. BEIDEMAN: Have you ever approached any of the larger environmental groups with your

19 proposal to put them out to the end of the boats, etcetera?

20 MR. HINNMAN: Yes. I've approached the FCA, and a couple of others that I can't recall off

21 hand -- right this minute. But I have. And they have been working with me.

22 MR. BEIDEMAN: It would be something that they could do in the (inaudible).

23 MR. HINNMAN: Yes, it would be.

24 MR. DUNNIGAN: Mr. Sampson?

25 MR. SAMPSON: Yes. Mark Sampson. I would -- if we're going to discuss this tomorrow, I

26 would like to just make comments tomorrow on this product, but for the benefit of anybody in the audience

27 that might not be here tomorrow, I would like to say that I have been using these (inaudible) for a couple of

1 years on many of the large HMS species. Specifically, the sharks and tuna. And they are absolutely
2 amazing. The very first time that we used one, taking the hook out of a (inaudible) shark, (inaudible) was
3 made with very little apparent trauma to the fish. It was just amazing.

4 PARTICIPANT: (Inaudible)?

5 MR. SAMPSON: No, we're safely away from that end of it. And I just can't go on enough to
6 say that this product is truly amazing. And one thing that I don't know if you're aware of either, but I
7 know at least one veterinarian who is using your product to remove hooks from dogs and cats that have
8 swallowed fish hooks, and they work for that too apparently, so --

9 MR. HINNMAN: Well, I know another marine biologist who has seen me take it out of a seagull
10 or a pelican, I believe. I'm not going to mention any names. But it does work.

11 MR. SAMPSON: But I have used other de-hooking devices before, but I've not had anything that
12 works as well as this, and I think that it truly might be something that we all might want to consider,
13 because it does seem to (inaudible). That's where we're headed with all of this.

14 MR. DUNNIGAN: Ms. (inaudible)?

15 PARTICIPANT: How successful is it on billfish?

16 MR. HINNMAN: It's great. Every response I've had back -- I mean, they're even -- I mean tunas,
17 you know, sailfish, groupers, snapper, barracuda, whatever. Even if you can't see the hook, it will go
18 down, remove the hook. If the hook is in backwards, it will spin it 180 degrees. It will hide the point of
19 the hook so it will not re-engage in that fish on the way back out. And it happens so fast that the fish will
20 actually stay there in most cases and not even know you took the hook out of it.

21 PARTICIPANT: (Inaudible)?

22 MR. HINNMAN: Yes, ma'am, but I gave it to a gentleman who is not here right at this minute.

23 PARTICIPANT: He gave it to Carl, because Carl is the expert.

24 PARTICIPANT: (Inaudible)?

25 MR. HINNMAN: I make one for a blue gill that is about that big and Bass Master magazine just
26 did a six-page article on how to remove hooks and they featured me in that six-page article -- in this
27 month's Bass Master.

1 PARTICIPANT: (Inaudible)?

2 MR. HINNMAN: Anything. And it's made out of 3/16th stainless steel, and even if it is dropped

3 overboard, it will not pollute the environment.

4 MR. DUNNIGAN: Mr. Hinnman, thanks very much. Do you have a paper, or --?

5 MR. HINNMAN: Yes, sir.

6 MR. DUNNIGAN: Do you want to leave it with us?

7 MR. HINNMAN: Yes, sir, if I could.

8 MR. DUNNIGAN: If you'll just give them to Rachel, she'll have them and they'll become a part

9 of the public record. And thank you very much for coming

10 MR. HINNMAN: Thank you very much, sir.

11 MR. DUNNIGAN: Next person on the list is Mary Canigh (phonetic).

12 MS. CANIGH: Hi. I'm Mary Canigh with the National Autobahn Society, and I'm here to

13 present comments for a coalition of environmental groups, including the Ocean Wildlife Campaign,

14 National -- NRDC -- Natural Resources Defense Council for Wildlife fund, the Center from Reconservation,

15 National Coalition for Marine Conservation, and Wildlife Conservation Society -- seven organizations.

16 We've submitted this as part of -- we have written comments that we have in the back, but I'd just

17 like to cover some of these points for the record. Given the life history of -- I'm going to speak specifically

18 to what we recommend for shark recovery and shark issues. Given the life history of these animals, that

19 they're long-lived, have low reproductive capabilities, and given the uncertainty in the data that has

20 constantly alluded to, especially today, in our workout group, we are -- we feel that we need to choose the

21 most risk averse options available.

22 Is this too -- am I speaking too loudly here?

23 MR. DUNNIGAN: No. Perfect.

24 MS. CANIGH: No? Okay. To begin with, we believe that some of the projections that are

25 presented in the shark evaluation workshop 1996 report are overly optimistic, and we believe this is the

26 case because in projecting forward, they use an unrealistically high, and biologically unrealistically

27 unrealistic R value. We feel that it would be better to use a biologically defined or determined R value,

1 something that is presented in the SEW report in the little lines of .02 to .12.

2 These are demographically derived values that will come out of a lot of the research that has been
3 done over the past few years and is presented in the SEW report. In addition, we think that -- and one thing
4 I would like to do is encourage NMFS to actually do these projections using these types of R values so that
5 we can look at some of the scenarios and look at the recovery rates based on these more biologically derived
6 values.

7 In addition, we think that it is necessary to establish targets, and the target that we would
8 recommend for these long life species would be something along the lines of NMSY as defined as .6
9 carrying capacity, or 60 percent of the carrying capacity. In addition to be risk averse, we also think that
10 the catch should be set at no more than 90 percent maximum sustainable yield. And as Ellen mentioned,
11 there is some precedents for this type of approach that has been used by the International Whaling
12 Commission to establish catches and rebuilding for whale populations.

13 Ellen presented some of these -- Dr. Pikitch presented some of these projections based on, for
14 example, using an R value of .07. And as we see there, the recovery -- recovery does not occur until the
15 current quota levels. That additional measures would be needed. And, obviously, some of these things
16 could include additional quota reductions and, as Ellen mentioned, looking at -- we will not see a recovery
17 until the quota is reduced by an additional -- I think it was 20 or 30 or 40 percent.

18 But there are alternative measures that have also been represented -- discussed -- in the shark
19 evaluation workshop report. And one of the things that scientists have recommended is that you can get
20 added value to rebuilding projections if we look at reducing juvenile mortality. And there are a number of
21 approaches to doing that.

22 One of those would be through area closures, for example, shutting down pupping grounds, or
23 alternatively we can also -- and/or we can look at things like minimum sizes. We have some concerns
24 about using minimum sizes, but we would strongly support the idea of doing that, provided that NMFS
25 could undertake some of the analyses to look at the quantitative or effective reductions of fishing mortality
26 that would come out of various minimum size options.

27 In addition to (inaudible), we would also very much support looking at closing pupping areas.

1 Pupping areas -- I know that we've talked about this a number of times before and that movement is going
2 in that direction, but we also feel that NMFS has to make a bigger investment in identifying some of these
3 areas and also we ask that -- also encourage the states and other organizations to do things such as reduce
4 directed fishing for large coastal sharks and also to address fishing activities that take large numbers of
5 sharks as their by-catch as part of their effort to close areas.

6 Let me see what else I want to say. We also encourage NMFS to count all discards against the
7 total allowable catch, and also we are concerned about overages and ask that those things be addressed by
8 reducing them from the next semi-annual quota, including the carry over from one year to the next year of
9 any reductions in overages.

10 We also -- we know that NMFS is now moving towards more species specific management, which
11 we encourage. The problem here that we see in trying to base management on -- in the shark fish reef, for
12 example -- on the dominant species such as sandbar shark and black tip shark is that other species that are
13 more vulnerable could fall through the cracks. So we are very much concerned, for example, about the
14 status of dusky sharks, who have probably even more conservative life history than sandbar sharks, and also
15 who have undergone very large reductions in abundance and may be have lower capability of recovering.
16 And as far as I'm aware, there is no signs of recovery for any duskies in the area.

17 So we encourage an alternative approach, and that is to take a very vulnerable species like duskies
18 and move them into the prohibited species management unit. So that's one recommendation is to prohibit
19 directed fishing on duskies.

20 Let's see. We also want to stress the importance of continued investment, both in funds and
21 support, for research. That is, both fisheries dependent and fisheries independent analyses. We feel that
22 there has not been adequate -- or there is a pulling back of investment in some of these things, and it's --
23 because of the concern about the uncertainty in the data, we need to continue some of these monitoring
24 efforts and make sure that that data is captured to incorporate into the future projections and modeling
25 efforts.

26 And I think -- let's see -- I think there is just one more point I want to make. And that is that
27 despite the fact that we are focusing right now on large coastal sharks, because large coastals are the only

1 group of management unit that has been declared over-fished, we are also very concerned about the status of
2 small coastal sharks and pelagics.

3 Some of the analyses that came out of the 1995 shark evaluation workshop report suggest that
4 pelagic sharks have undergone similar rates of decline, and we are not really doing anything about it right
5 now. Management may not be -- current management may not be effective in reducing any further declines.

6 So we feel that -- and also there has been no recent assessment for pelagics or small coastals since
7 the establishment of the FMP. So we encourage NMFS to support and participate in all efforts to collate
8 available fisheries and biological data on particularly pelagic sharks and to schedule a pelagic assessment for
9 1999. And I think that covers everything. And as I mentioned before, we do have a written statement in
10 the back if anybody wants further clarification of some of these points.

11 MR. DUNNIGAN: We appreciate that. Thank you very much. And your written statement will
12 also be included as a part of the record. Are there questions for Ms. Canigh? Mr. Beideman?

13 MR. BEIDEMAN: Nelson Beideman, Blue Water. Pelagic sharks are very, very (inaudible).
14 What would you have us do as far as trying to get started, because our catch of pelagic sharks is very, very
15 little. And, you know --

16 MS. CANIGH: Well, I think the first thing is to look at that -- to look at where -- to start to
17 begin to collate the data on what -- who is catching what where.

18 MR. BEIDEMAN: In ICCAT?

19 MS. CANIGH: In ICCAT countries as well as the U.S. and look to see what options we do have
20 for improving management of these species.

21 MR. DUNNIGAN: Mr. Wilmot.

22 MR. WILMOT: Just a clarification. It would mean that we would request that ICCAT do this
23 collation of data with simply all the countries in the Atlantic fishing forum (inaudible). Is that correct?

24 MR. DUNNIGAN: Mr. Beideman?

25 MR. BEIDEMAN: One of the problems is that, you know, the countries that are fishing
26 (inaudible) in the Atlantic, they all catch sharks. It is all the same countries. And it is nothing (inaudible)
27 to get them (inaudible) in trying to get them doing something constructive in ICCAT. Now, building

1 whole other forum basically with all the same players takes years and years and years, and it is going to be
2 all the same players at the table.

3 I mean, you know, I've never understood why the environmental community won't support trying
4 to make ICCAT or, not only for the high migratories, but also for the sharks, and also for other species
5 that these same fisheries by-catch for long-line fish. Every gear we have including mahi mahi and
6 (inaudible) does that. I don't know how, you know, from your perception, how do we go about this? Do
7 we create a whole new regime, as Dave is talking about, or try to make ICCAT work?

8 MR. DUNNIGAN: Would you care to comment?

9 MS. CANIGH: I'm not sure I think this is the appropriate forum to get into this, especially
10 because we are right now focusing more on rebuilding stocks that are considered over-fished, and I think that
11 I would very much welcome us having a discussion about that, and that is one of the things that we would
12 like to do, is pull together various groups of people to discuss what options are there out there, and whether
13 or not -- regardless, we still have to look at what we'd need to do to manage our domestic fishery. And so
14 that is what we're talking about here. But I think that we need to pursue this discussion.

15 MR. BEIDEMAN: (Inaudible). That's why I asked.

16 MR. DUNNIGAN: Are there other questions for Ms. Canigh? Dr. Dean?

17 DR. DEAN: Yes. Many of us have struggled with this current issue. I'd like to have you clarify
18 a little. That is what if we had a policy that required (inaudible) of all the fish (inaudible), but you didn't
19 count -- but that didn't count against the quota, because I also heard you comment on concerns about the
20 quality of that is used in internal (inaudible) models in stock assessments? There is a lot of -- we struggle
21 with that. How do we get good data unless all the fish come in -- unless there is some concern that
22 (inaudible) numbers?

23 MS. CANIGH: Okay. I don't know if I misstated this or not, but my suggestion is that we do
24 consider looking at all the discards, including them, to count a good quota, so --

25 DR. DEAN: That is not my advantage to bring you discards. I can't document -- there is no way
26 of documenting --

27 MS. CANIGH: That's correct. That's correct. You know, that's a difficult question, I think, that

1 we grapple with too, and I suppose one approach to that is just making sure -- increasing observer coverage
2 to try to get at some -- making sure that some of those numbers are captured.

3 DR. DEAN: Thanks.

4 MR. DUNNIGAN: Questions? Mr. Beideman?

5 MR. BEIDEMAN: Do all the fisheries -- all the HMS fisheries -- bring down so they can monitor
6 one fisherman with by-catch. We know we have exactly the same quota that they (inaudible) and everything
7 else within sight of each other if you only monitor one fishery for discards. Do we just (inaudible) that one
8 fishery, or we monitor all other of the highly migratory species fisheries because common sense alone
9 dictates that each and every single one including (inaudible) that is (inaudible).

10 MS. CANIGH: I think our recommendation is that we need to capture this information from all
11 fisheries and, therefore, required monitoring of all HMS species.

12 MR. DUNNIGAN: Other questions? Thank you very much. We appreciate it very much. As I
13 said, your statement will be included -- your full written statement -- as a part of the record.

14 MS. CANIGH: Thank you. Great. Thank you.

15 MR. DUNNIGAN: Those are all of the people who have indicated a desire to make a statement
16 this evening before the service and the advisory panels. And unless there is other business -- Mr. Dunn?

17 MR. DUNN: One brief comment. I just want to say that I think that Jack has done an excellent
18 job being moderator of this panel, and this has been by far the most productive meeting I have ever
19 attended, and that I would encourage the fishery service to bring a non-panel member in to moderate all the
20 subsequent AP meetings. (Applause.)

21 MR. DUNNIGAN: That's right. Before we go on, just a housekeeping issue to remind everybody
22 that that the sharks breakout group will reconvene in this room tomorrow morning at 8 o'clock, and we
23 will make available the first half hour of tomorrow morning's general discussion to give them an
24 opportunity to share with the group at large what they've learned and ask any questions. But at that point,
25 we will then have to move on with the agenda. Pamela Mace, please come up here.

26 (End of Tape 8, Side B.)